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EDGE

Sony ■ Sega ■ Nintendo ■ 3DO ■ Amiga ■ PC ■ Atari ■ SNK ■ Arcade ■ NEC ■ CD-i

Nintendo's 64bit killer





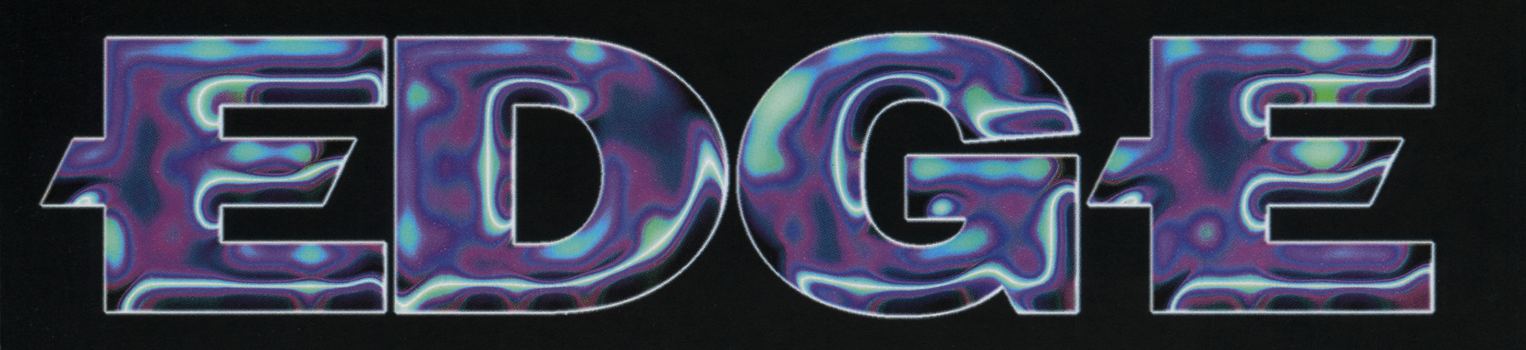
Voted Magazine of the year



Industry awards

Nintendo's Ultra 64 (né Project Reality) premieres at the Summer CES. Edge goes one-on-one with Rare's astonishing *Killer Instinct* and details the highs and lows of Chicago '94

Future Publishing


EDGE



Nintendo show the future… But are they living in the past?

Nintendo pretty much stole the Chicago CES with their next-generation hardware and software. But it's ironic that extra visual finery hasn't been matched by any real advances in gameplay.

Killer Instinct for the Ultra 64 is an amazing beat 'em up, but its side-on perspective and familiar play style has already led to it being dubbed *Street Fighter 2000*. Similarly, Williams' *Cruisin' USA* arcade game, scheduled for Ultra 64 conversion, is one of the most conventional driving games you'll ever see, and hardly the graphical extravaganza that everyone was expecting.

The oddest aspect of this is that Nintendo have always been gameplay innovators, taking fairly typical subjects and delivering character, depth and, above all, playability. Just look at *Super Mario Kart*, *Pilotwings* and *Wildtrax*. All three games are brimming with rewarding play mechanics and unusual features.

Donkey Kong Country may have set new visual standards for SNES games, but offering something new in gameplay terms could prove to be a tough call for Rare. And it's worth remembering that Nintendo are the only company with the resources to produce a game like this. Nintendo buy their 32-meg carts from Nintendo. So, presumably, Nintendo cut themselves a pretty good deal. *DKC* could cost as 'little' as £50 in the UK, but a thirdparty publisher would have to sell the same game at £100 because of the prohibitive cost of the ROM cartridge. No-one can afford to meet Nintendo's standard, let alone beat it. So perhaps Nintendo's groundbreaking cart will be the first and last of its kind.

If this is the new Nintendo, let's hope they don't carry on playing the same old game.

The **future** is almost here…







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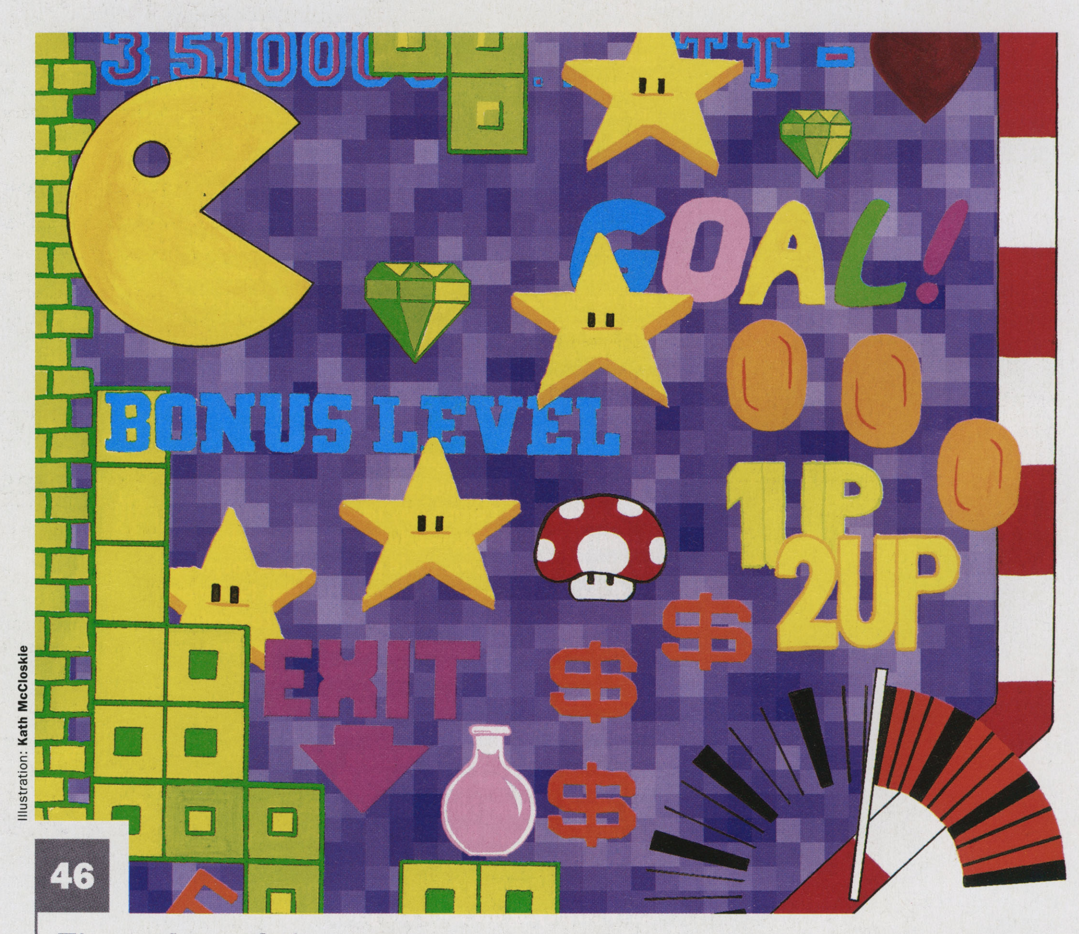


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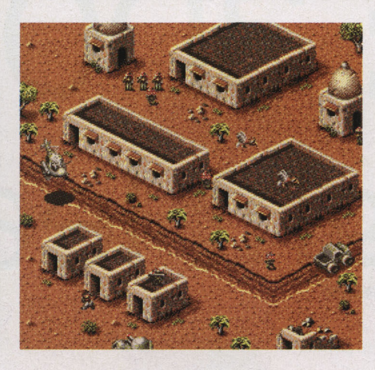
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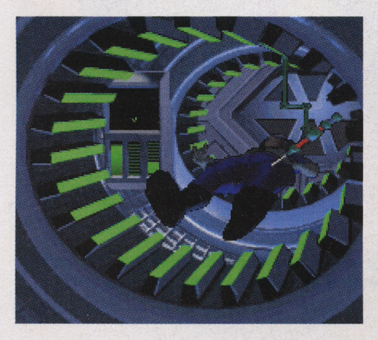


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Prescreen

FIFA International Soccer for the 3DO (left) and the Amiga's *Cannon Fodder 2*: two of the embryonic titles tipped by **Edge** for future greatness





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Testscreen

TIE Fighter (left) and *Shock Wave* are both eagerly awaited games, but **Edge** is not swayed by reputations. Will Testscreen leave their good names intact?



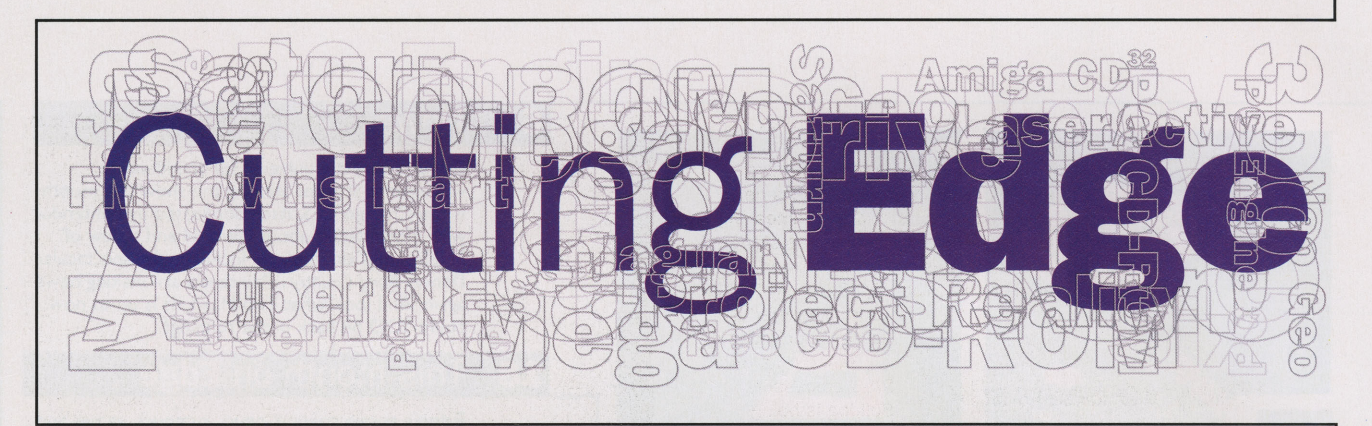
Photography: Jude Edginton

Rob **Dyer**

Rob Dyer used to work for Disney, but his new workplace, Crystal Dynamics, is no Mickey Mouse outfit. They've already provided the 3DO with some of its best games, and their future is looking bright. **Edge** gazes into the Crystal ball

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3DO: astounding new hardware for 1995, **page 6...** Mammoth **CES** report, **page 8**: **Ultra 64** ready to play... SNES visits ***Donkey Kong Country***... **Street Fighter** movie... biggest ever **3DO** games line-up... 20 new **Jaguar** games... New **3DO** boxes from **Goldstar**, **Samsung**



The latest **news** from the world of interactive entertainment

Bulldog: 3DO Mk2 on tight leash

Rumours about a second-generation 3DO are not new, but so far no explicit details have surfaced. Until now. Edge has the first hard intelligence on 3DO's big secret

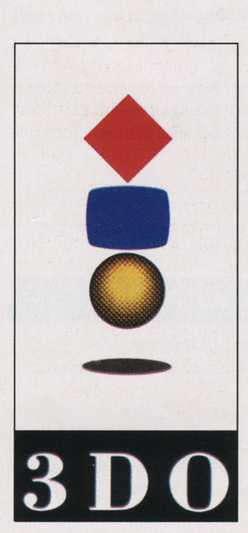
As Panasonic rev up for their UK 3DO launch, **Edge** has unearthed highly confidential details about a revolutionary new system from Trip Hawkins, first hinted at in **Edge** 10. As the current 3DO gradually loses disciples in the face of mounting competition from Sony et al, information has been leaked about a new 3DO-compatible 64bit machine, given the menacing codename Bulldog. Scheduled for a Christmas 1995 launch and boasting some hugely impressive specs, the system is set to appear in two main guises: a $100 (£75) upgrade cartridge, designed to placate current 3DO owners; and a $250-400 (£170-270) standalone system as the entry point for those wishing to start afresh on the next level of 3DO performance.

As predicted by Trip Hawkins in **Edge** 10, the new system will be downwardly compatible with the existing 3DO platform. That means it will be possible to run all current software on Bulldog, and the addition of an upgrade cartridge will also enable Bulldog software to be played on the original machine. An insider told **Edge**: 'What 3DO's hardware guys have done is squeeze the entire 3DO circuitry onto two little chips – the existing 3DO system is just a part of it.'

Having been unable to decide between upgrading the original hardware and starting anew [**Edge** 10], 3DO now seem to have embarked on a two-tier structure for Trip Hawkins' 'global platform'. 3DO are encountering an obstacle historically faced by hardware manufacturers – how to provide increased performance without dumping on those who've already bought in. The danger is that 3DO could end up being haunted by the same jerky evolution curve as the PC, in that users are theoretically able to run all their new software on a standard machine, but in reality their →



3DO will soon be arriving at a higher plane of performance. But will developers shun the basic system and alienate existing owners?



→ old boxes are about as useful as gardening stools.

Judging by the specs that have already been uncovered, 3DO's new vision extends beyond the games-only arena. With MPEG1 built-in as standard and MPEG2 as a possible option, it appears that The 3DO Company is still vigorously defending its multimedia corner.

'They've basically screwed themselves into the ground with the first machine. But they're making a lot of money on it'

Based on a 64bit RISC processor, Bulldog is being touted to a handful of developers – all gagged by NDAs – as a '66MHz single cell SDRAM system', in contrast to the dual cell 25 MHz DRAM architecture of the standard 3DO. Boasting a rendering performance of 250,000 texture-mapped polygons per second and an unbelievable 400Mb per second bus bandwidth (three times greater than the PlayStation or even a top of the range Pentium), the 3D abilities of Bulldog are rumoured to be more than a match for anything else in development. And unlike Sony's PlayStation, there's full hardware support for Z-buffering.



Trip Hawkins' recent decision to resign from his position as chairman of Electronic Arts is one of the most crucial episodes in the Bulldog story. Since 3DO's US launch last year, the EA connection has been a lucrative one for 3DO, providing them with some exceptional software. But the benefits weren't reciprocated – EA's recent decision to extend its format coverage to Sony exposed a significant conflict of interests between the two companies. Now, with all his eggs firmly in one basket, Trip is building a huge inhouse development department – on the foundations of existing inhouse team Studio 3DO – with a planned seven or eight separate teams working on Bulldog games in time for the launch in late 1995. Thirdparty development systems won't be shipping until February or March of next year, though.

'They've basically screwed themselves into the ground with the first machine,' explains **Edge**'s source, 'but they're actually making a lot of of money on it, and their philosophy right now is to keep selling it while they can. They're also realising that they're making good money on the software and it can actually fund the costs of the new hardware.'



Trip Hawkins: 'We don't need a next-generation product until there's much more pressure in the marketplace...'

But actually taking such an ambitious slab of new hardware to market at its proposed price could prove an unsurmountable hurdle. 'The problem Trip has is that he's backed by Japanese guys who aren't Sony,' adds **Edge**'s informant. 'They want to make money from the hardware because they don't make a penny from the software. I think they'll have a lot of trouble pricing Bulldog.'

Being first to the market has resulted in mixed fortunes for 3DO, but if all goes according to plan, Bulldog could be the trump card Trip has been waiting to play all along. What is certain is that, although the PlayStation and Ultra 64 are now regarded as the benchmarks in 3D performance, 3DO can no longer be consigned to the also-rans. Maybe Trip's 'quantum leap' will happen after all... E

Dream team

With such a powerful system waiting in the wings, the hardware team behind Bulldog is one of The 3DO Company's most closely guarded secrets. However, it is rumoured to include renowned 3DO VPs R J Mical and Dave Needle (designers of 3DO Mk1, the Atari Lynx and the Amiga), and it's also thought that 3DO have drafted in some heavyweight support from other leading silicon designers. 'It'll be a shock to some people when they find out who's built it,' claims Edge's source, 'perhaps because of the involvement some of them have with other major hardware companies.'

Bulldog tech specs

CPU:	66MHz RISC processor (possibly R series)
Memory:	4Mb SDRAM; 4K instruction cache; 4K data cache; 32K or 64K non-volatile RAM; 400 Mb/sec bandwidth
Graphics:	100,000,000 pixels per sec; 250,000 mesh (textured) polygons per sec; triangle engine (150,000 triangles per sec); hardware texture mapping (bi-linear interpolation); point sampled and MIP mapping; Gouraud shading on Alpha and RGB channels; true 3D perspective in all modes; full Z-buffer support
Colours:	24bit colour; 8/16bit CLUTS
Video:	MPEG1 built in, with flexible rates and multiple stream rates; MPEG2 to follow as an option
Resolution:	640x480–320x240
Storage:	Double-speed CD-ROM drive; 2:1 hardware decompression (matching PK.Zip)
Miscellaneous:	NTSC/PAL/HDTV/wide NTSC and support for SVGA; 32K RAM carts for saving data; DVD CD standard (8x speed) by 1996
Available:	Christmas 1995



SCES: Nintendo render new image

Nintendo's gorilla tactics hit the target at this year's Summer CES in Chicago





Rare's superb rendered visuals for *Donkey Kong Country* (top) easily stole the show

A healthier, fitter Nintendo Of America emerged as if from a cocoon on the first day of the Chicago CES. After a disappointing performance at the winter show in Las Vegas, the Redmond giant revived their badly wilting profile with the aid of some new software technology and the revelation of Project Reality (now retitled, horrendously, Ultra 64) in a private suite away from the show.

Nintendo's software showstopper was the stunning-looking *Donkey Kong Country*, unveiled by NOA chairman Howard Lincoln on the first morning of the show. In his keynote speech Lincoln emphasised the importance of gameplay over technology, an apparent contradiction, given the formulaic nature of *DKC*, that left a bitter taste in the mouths of loathers of conventional platform games (and, presumably, any unfortunate individuals who'd just spent the last year programming a 16bit platformer and now realised how scabby it looked in comparison).

With 28 people involved in the project and 20 man-years' work already invested in it, *Donkey Kong Country*, programmed by Warwickshire-based Rare (formerly known as Ultimate Play The Game), is no ordinary SNES game. Although Rare conceded that the version seen at CES was only 60% complete, Nintendo weren't complaining, and neither were Alias, whose *PowerAnimator* software was the creative tool behind the game's SG-originated images. With fully rendered backdrops and sprites, it has to be said that *DKC* has some mindblowing visuals, and it was every bit the tour de force that Nintendo hoped it would be. Although it is essentially *Mario* with a bit of *Super Adventure Island* thrown in, that didn't stop **Edge** from hogging the joypad for a good few hours.

The rest of Nintendo's line-up was less impressive. The only other ACM

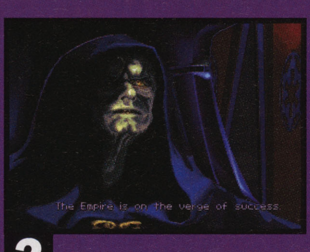


Nintendo's familiar dome (above) was firmly in the shadow of the great *DKC* stand

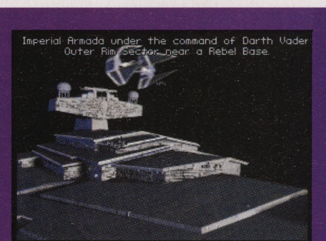
Attract mode

LucasArts' *TIE Fighter* (see Testscreen, page 68) is the latest addition to the Star Wars stable's shoot 'em up series – with the novelty being that this time you get to play the bad guys. Edge's regular homage to the art of the intro finds the evil Empire in attack mode

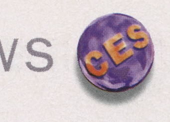
1 The Emperor summons his generals to the capital. He has intelligence that shows the Rebel forces to be in disarray, and the Empire is planning to take advantage of the situation

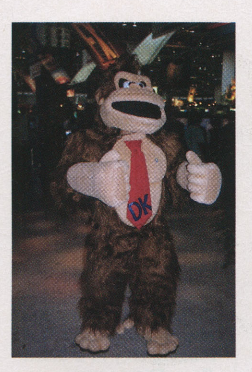


2 The Emperor, speaking in his unmistakable husky voice, glosses over the recent destruction of the Death Star and assures his commanders that one final assault will deliver victory



3 Cut to deep space. The Imperial forces have massed for the assault. An Imperial Star Destroyer, surrounded by a flotilla of buzzing TIE fighters, closes in on the Rebel





Some journalists went to surprising lengths to get into the Project Reality (Ultra 64) suite

game (ACM is Advanced Computer Modelling, or Nintendo-speak for pre-rendered 3D animation) was a SNES title from Scottish team DMA Design, recent Ultra 64 converts. Their *Uniracers*, complete with 6,000 (mostly undetectable) frames of animation, was billed as another breakthrough in animation and graphical performance, and yet managed (albeit in its presumably embryonic state) to scroll like *Sonic The Hedgehog* with a unicycle as the main character. However, some delegates did seem to be entranced with its 'unique' gameplay.

Stunt Race FX made it to its third consecutive CES, but, sadly, few people took much notice of this slow but deceptively wonderful racer. The game's producer, Shigeru Miyamoto, was also there, and **Edge** managed to ask his opinion of *Donkey Kong Country*. 'Ah, nice graphics,' laughed the shy and likeable programmer, as if he wasn't quite sure about the game's other attributes just yet.

A sequel to the ancient and thoroughly respectable 10-year-old boxing coin-op, *Punch Out*, made a surprise arrival on the SNES, but for the most part, Nintendo's so called 'best show line-up ever' turned out to be a one-game wonder.





DKC **boasted a custom-made jungle with circling vultures (top), squawking chimps, and DK's own treehouse (right)**

What is it?

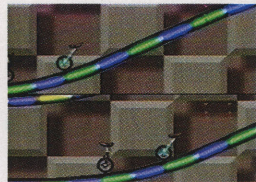
This machine is being made by a company that used to distribute Nintendo product in this country. It's got an 8bit CPU, can run CDs, contains a custom LSI chip for loading data, and has full-colour graphics and stereo sound

Everyone knew that Project Reality would be making an appearance at CES – a select band of the press, **Edge** included, had already received invitations for a private showing. As journalistic pressure mounted over the three days, the privilege was extended to a wider field of developers and the world press.

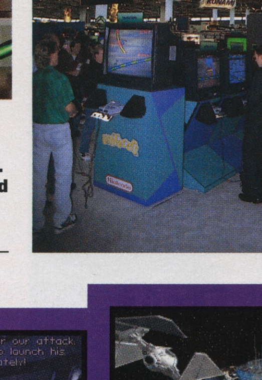
Located with the rest of the Nintendo camp at the Stouffer Riviera Hotel in downtown Chicago, the Project Reality suite was by far the most talked about attraction of the show. Buses ran between the two locations all day long for the duration of the show, taking delegates to the hotel for their own 20-minute slice of the future.

Nintendo staggered the demos to admit groups of ten people at a time, and **Edge** 'shared the experience' with a small group of electronics dealers from New York. After about 15 cameras were confiscated, along with other recording devices that could have been used to capture the memorable occasion for posterity (and magazine exclusives), everyone was hurried into

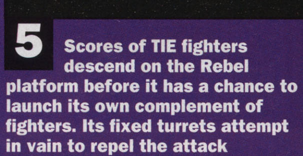
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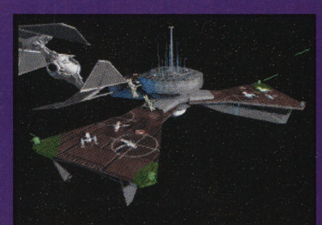




DMA Design's *Uniracers* (above) was the other 'breakthrough' SNES title. What the prototype lacked in looks was made up for in curiosity value (right)



4 **Commanding the operation from his personal TIE fighter, Darth Vader gives the order to the invasion fleet to begin the attack. The TIEs are launched from the Star Destroyer**



5 **Scores of TIE fighters descend on the Rebel platform before it has a chance to launch its own complement of fighters. Its fixed turrets attempt in vain to repel the attack**



6 **Skimming the platform's surface to avoid the turbo lasers, the TIE fighters make short work of the stationary X-Wings. The Rebel's lasers cast a green sheen over the nearby ships**



7 **With the Rebel base annihilated, the TIE fighters return in formation to the Star Destroyer. Fade to Star Wars logo. Cue Star Wars theme music. Game on...**



it is...

Bandai's BA-X system. The machine was shown for the first time at last month's Tokyo Toy Show and will be launched later this autumn in Japan for £185. *Dragon Ball Z 3* will be one of the first games released for the BA-X



Nintendo's Peter Main: 'I don't reckon much to that Donkey Kong thing...'

a small, dark briefing room, where an unbelievably wooden American actor, with a smarmy demeanour that would have made Richard Nixon seem like a really honest bloke, played the part of the warm-up man.

Silicon Graphics' Ted Jermoluk then appeared on two big-screen TVs, accompanied by some ominously familiar Onyx demos – the real stuff was being saved for the next room. After ten minutes the curtains were drawn back and another dark room opened up with even more monitors inside. Inside were four sit-down driving game cabinets housing *Cruisin' USA*, and two large TVs displaying *Killer Instinct*. Remember the chocolate room in *Willy Wonka's Chocolate Factory*? Well, Nintendo had the videogame equivalent – a small enclosure where, for 20 minutes, grown men were made to feel like kids.

The games

themselves were a mixture of triteness and technical innovation. *Cruisin' USA* – a pan-American 'touring' racer starting in San Francisco and finishing at the White House – was starved of even the latter commodity. Looking like a cross between 3DO *Road Rash* and *Out Run*, *Cruisin'* wasn't the *Ridge Racer* or *Daytona* beater that everyone expected. Featuring the most sprite-like polygons **Edge** has ever seen, Williams' sit-down coin-op was reassuringly playable, though, if technically lacklustre.

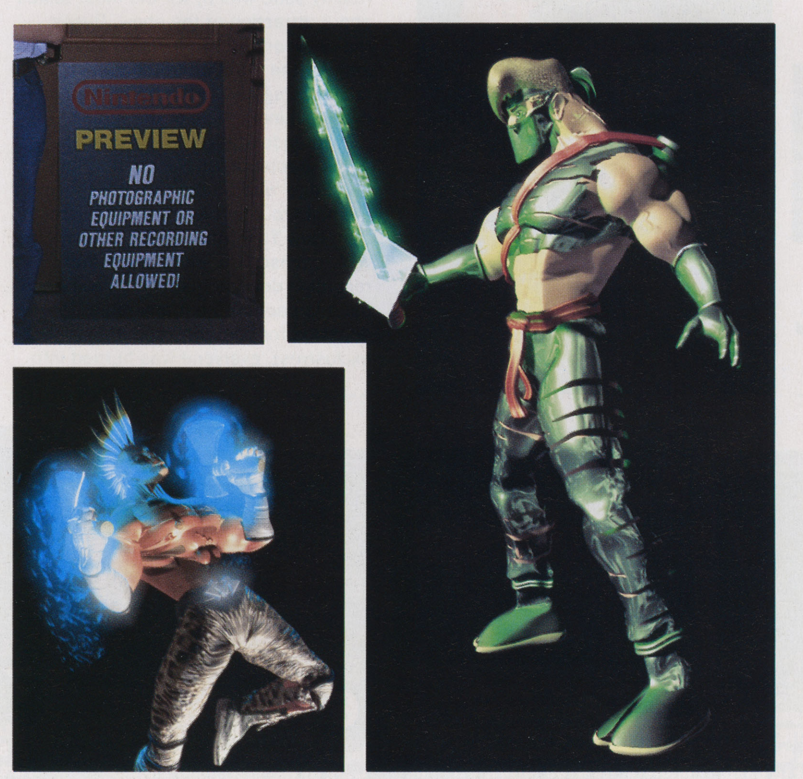
Virtua Racing-style, *Cruisin'* included three different perspectives selectable by the player and a choice of manual and automatic gears. The game's most unusual aspect, though, was its size – even in this unfinished version, it took



Getting a cab from the show wasn't easy. But looking silly in a *Stunt Race FX* car was

Killer Instinct

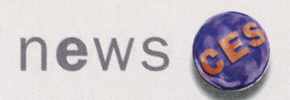
Rare's game was far more impressive than *Cruisin'* but still suffered from a noticeable lack of vision with its *SFII*-style 2D dimensions and *Mortal Kombat II*-style blood and gore (a first for Nintendo). But like *Donkey Kong Country*, the quality of the rendered sprites and backdrops in *Killer Instinct*, and above all, the futuristic characters were sufficiently cool to satisfy those looking for the next big beat 'em up sensation to hit the arcades. Rare's game wasn't complete by any stretch – only four characters were selectable (viewed in true 3D perspective on selection) and there were only four backgrounds to see. But the sheer beauty of some of them left players' eyes on stalks.

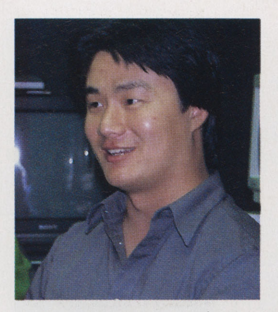


The Ultra 64 demos were closely guarded from potential snapparazzi (top left). A brace of Alias-rendered fighters from *Killer Instinct* (above); gameshots will appear soon

BUZZ words

acm
you don't want a bloody pen 'n' paper anymore son you want to get an **acm** that stands for **advanced computer modelling** incase you didn't know it's a computer right that draws models for you advanced ones that is i mean the other day i was off down the shops and i needed a bit of help so i got me **acm** to knock up my very own cindy crawford now she's a bit advanced she wouldn't keep her hands off me i had to delete her arms in the end which wasn't to bright she dropped me meat and two veg...




Edge spoke to Howard Cheng, SGI's software manager for the Ultra 64, for an inside view

Edge over ten minutes of cruisin' to discover it was still in the same state. No silly coin-op limitations here – *Cruisin'* is so big that if you wanted to visit your grandmother in Arkansas you could probably drive past her house.

The graphics, although basic on first impressions, did have a certain charm once you'd let them wash over you for a few miles. The textured polygons had obviously been designed by someone nostalgic for the late '80s school of racers, while the roadside objects revealed some surprising detail up close, with none of the blockiness in 3DO *Road Rash*.

But it was the hardware running *Cruisin'* that got the technophiles nattering. After someone close to Williams let on that there was probably more Ultra 64 hardware inside the 3DO than *Cruisin' USA,* Nintendo confessed that the game ran on a proprietory Williams chipset and would be 'weened over' onto the Ultra 64 in time for launch. Despite this, Nintendo officials inside the Ultra 64 suite insisted that Williams' game was running on the same hardware as *Killer Instinct*.

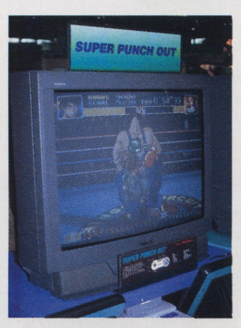
And *Killer Instinct* was what everyone had been waiting for. Any game that looks about ten times more solid then any beat 'em up before it has certainly achieved something. The game's visuals provided testimony to Rare's graphic design skills, with backdrops ranging from a wonderfully lit stone room to a scene featuring a rope bridge straddling a ravine.

And **Edge** was impressed with the playability, too. The ability to knock a fighter out of one scene to land in another was a superb feature. One level permitted both characters to move so far apart that the screen panned out for miles, leaving the characters lost in the surrounding scenery – very neat, if not entirely practical in gameplay terms.

Nintendo were at pains to emphasise that the home Ultra 64 version of these games would be *identical* to the arcade version, with 'the same speed and the same quality graphics and sound'. Ingeniously, Nintendo, in tandem with Williams (the distributors of all Nintendo's future Ultra 64-based coin-ops) will be dangling the slogan 'Ultra 64 – available for your home in Fall '95' carrot-fashion in front of coin-op players whenever they invest a dollar.

Incidentally, anyone doubting that the demos at the show were being run by Ultra 64 hardware needn't worry. **Edge** can confirm that the area behind the display was an Onyx-free zone; the leads from the monitors led straight to a small box sporting a Rare sticker.

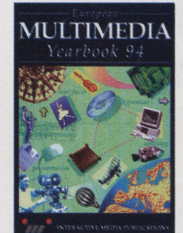
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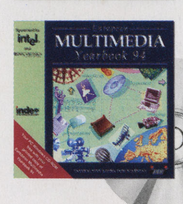



Revivalism: Nintendo's ***Super Punch-Out*** for the SNES, a sequel to the ten-year-old boxing coin-op and NES game

Essential reading

The European Multimedia Yearbook '94



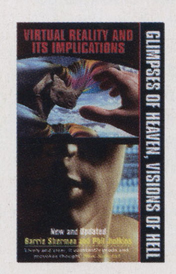


- **Interactive Media Publishing**
- £101 including CD-ROM version

ISBN 1-897603-04-5

This is a fat, expensive and indispensable reference to the industry that's spreading like a mushroom cloud on the horizon. Exhaustive and excellently presented, it includes essays on the key technologies, interviews with the big players, international market profiles, product surveys and, most importantly, a directory of every significant outfit, which platforms they're developing for, their products and their marketing sector. All this plus distributor listings, a glossary and a full index. Buy it, read it, assault your neighbour with it.

Glimpses Of Heaven, Visions Of Hell: Virtual Reality And Its Implications



- By **Barrier Sherman and Phil Judkins**
- **Fontana**
- £5.99

ISBN 0-340-60155-8

Hijacked by the scaremongers in the popular press, virtual reality has been given a pretty rough ride. This sensible and imaginative book stands as a corrective for the paranoid and a further education for the interested. Kicking off with a minimum definition of VR – it is inclusive (you become a part of a 3D world), it is interactive (you can change it), it is realtime (the changes occur as you make them) – the authors run through the hardware history, from brute number crunchers through CAD to reality engines and then see where that leaves us. Which is far short of the 80 million polygons/sec represented by the real world (God 1, Sony PlayStation 0) but pretty close to blowing our minds.

Although full of digestible diversions into the emerging technology, and replete with soundbites ('the true measure of computer power is MIPS per $ – Jonathan Waldern), the meat of the book is about VR's power as slave and master. Subordinated, it will bring untold rewards. Let loose, it could suck the vulnerable into a dark, amoral universe of sex, death, false religion and twisted propaganda, devoid of responsibilities, a tool for the unscrupulous. Can't wait.



Estranged from the rest of the videogames industry, 3DO's stand once again sat amongst the TVs and microwaves. A strong line-up, though

Continued

The 3DO cause looked healthy enough at CES. With new units on show from Goldstar and Samsung, plus Creative Labs' 3DO blaster card for the PC, there was an air of confidence which wasn't even dispelled by 3DO's stand being located 'in outer Siberia' (Trip Hawkins' quip about the fact that the Atari stand at Vegas was positioned away from the rest of the videogames community).

The software also gave cause for optimism. Crystal Dynamics had a superb conversion of *Samurai Shodown* in the works, emulating the Neo-Geo original perfectly, and *Gex*, their first stab at a 3DO platformer, also looked slick. In fact, no matter where you looked on 3DO's stand, there were games that stood head and shoulders above what could be seen elsewhere (with *DKC* the obvious exception). *Return Fire* was a superb sequel to that classic 1987 Amiga splitscreen tank game, *Fire Power*. With a slanted, top-down, scaling perspective providing originality, this had all the makings of a strong twoplayer blaster. Other honourable mentions should go to *Road Rash*, *3DO FIFA* and Tetragon's *Gridders* (a 3D puzzle game featuring a character wandering around dodging moving cubes).

Far more exciting for beat 'em up-starved 3DO owners was the news that Capcom are preparing *Super Street Fighter II Turbo* – the upgrade that's recently been denied to 16bit console owners – exclusively for the system.

Sadly, any superiority 3DO owners may have felt at this announcement was dispelled by 3DO's decision to go head-to-head with 16bit in a typically American 'ours is better than theirs' blaze of glory. By some haphazard logic, the games let loose on each other were Universal Interactive Studios' *Way Of The Warrior* (3DO) and the original *SFII* for the Super Nintendo, which trounced *WOTW*'s visual clumsiness, and is, let's face it, more or less the game that 3DO now has on the way from Capcom.



The 3DO Blaster card from Creative Technology runs 3DO games on any PC

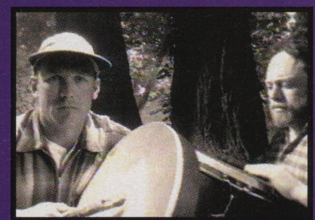

Samsung's VCR-styled 3DO player was a surprise arrival at CES; AT&T's machine, last seen in Vegas, was curiously absent, though

Advertainment

Edge's regular tribute to the art of videogame advertising. This month, Crystal Dynamics bang the drum about their 3DO games


1 A forest scene. The sound of drums. A group of plaid-clad men are sitting in a circle playing bongoes. Voiceover: 'In the '90s we're discovering truths about our inner selves'


2 Close-up of one of the back-to-nature men. As he rhythmically pummels his drum, a voiceover expresses his innermost thoughts: 'Nature is the source of my strength.' Fade


3 Close-up of another of the men. His feelings are also revealed in voiceover: 'I just wanna be loved'. Cut to medium shot of the same man banging the drum with his hands. Fade


4 Shot of another man. The camera zooms in for a close-up of his face. His expression exhibits signs of extreme boredom. Voiceover: 'Man, this blows.' Fade



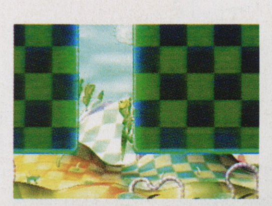


Korean company Goldstar also went public as a 3DO disciple: their players were up and running on a booth adjacent to the 3DO stand (right). No launch date was announced but a fourth-quarter slot and a keen price seem likely

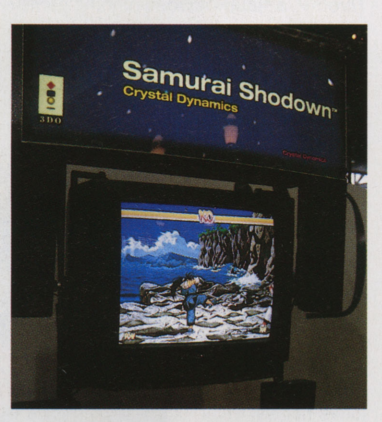
Where is it?

It boasts the largest gathering of videogame companies to ever assemble under a single roof. It's a twice-yearly event and has fast become *the* place to find out about the latest software and hardware developments

Stand size equals money equals power at the CES. And the beleaguered Atari corporation, whose final triumph may be to outlast arch-rivals Commodore, had very little money to throw around. But with a full UK launch imminent, judicious use was made of the space available.







Crystal Dynamics' 3DO excellence: *Gex* (top left) featured superb backdrops, while *Samurai Shodown* looked like a perfect conversion

Anxious to remind customers – and potential buyers – that the Jaguar has not rolled over just yet, Atari announced that 150 licensees have now signed up to develop software for the world's only 64bit system. Included in the list of developers are Time-Warner Interactive, 20th Century Fox Interactive and Electro Brain, but no hard information about intended titles was forthcoming. And what was instantly noticeable was the lack of quality titles actually available *now*. Admittedly, 35 games were on display, but as most of these were at an extremely early stage in the development process, the real total was closer to ten – and among those were the old favourites *Tempest 2000* and *Cybermorph*.

Atari had gone to great lengths to ensure that the centre of their stand didn't go unnoticed, and the jerky, bloodthirsty and generally inadequate *Mortal Kombat* clone *Kasumi Ninja* was displayed on a huge screen at its focal point. This was bad enough, but Atari's insistence that onlookers don a lamentable red-and-white headband before being permitted to take the controls was not appreciated, and the stand remained ominously ill-attended. However, some polite goading led to *Iron Soldier* being loaded in place of *Kasumi Ninja* and delegates flocked to see it, presumably now relieved that the threat of an embarrassing experience had been lifted.

Atari's hardware, featuring their new CD-ROM drive, fared little better than its software. For $200, you too can buy Atari's vision of what a 21st century commode might look like. **Edge** can but hope that no-one becomes sufficiently exasperated with the Jag's temperamental hardware to lift the lid and use it as such, especially after the





Return Fire **– another intriguingly good 3DO title. Twoplayer action and great 3D scrolling**

5 The drums are interrupted by rock music. The bored man is now seen with a 3DO joypad. A stream of 3DO clips follows



6 The words: 'No crying, no quiche, no wussies. Crystal Dynamics. It's a whole new game' appear. Cut to men in forest again. A squirrel is watching them. 'Jeez, what a buncha tools,' it sneers

Continued next page



***VR Stalker* from Morpheus Interactive was the first flight sim to touch down for 3DO**

it is...

The Consumer Electronics Show. The CES takes place in Las Vegas in the winter and Chicago in the summer. Nintendo stole this year's Chicago show with their utterly stunning *Donkey Kong Country* for the SNES

fate suffered by the CD-ROM unit at a recent Atari conference (see This Month On **Edge**, page 16).

The CD-ROM drive does have the benefit of *Virtual Light Machine*, though. Developed by Llamasoft founder Jeff Minter (probably to boost sales of his *Tempest 2000* audio CD) and built into every unit, this scans audio compact discs as they are being played by the machine and produces a spectral analysis of each note. After an instant interpolation, the frequencies are assigned colours and motion and displayed on the screen. The result is a stunning abstract light show that is perfectly in time with the music. Put one in the corner of the room when having a party – but make sure you cover it up first.

Other new hardware at the show could be found in the Sega press booth (Sega decided against a full stand this time), where a Mars development system was running some ropy Mega 32X (Super 32X in the US) demos of *Star Wars*, *Virtua Racing Deluxe* and *Metal Head*. All three showed the potential for fast 3D polygons, but were clearly at the teething stage.



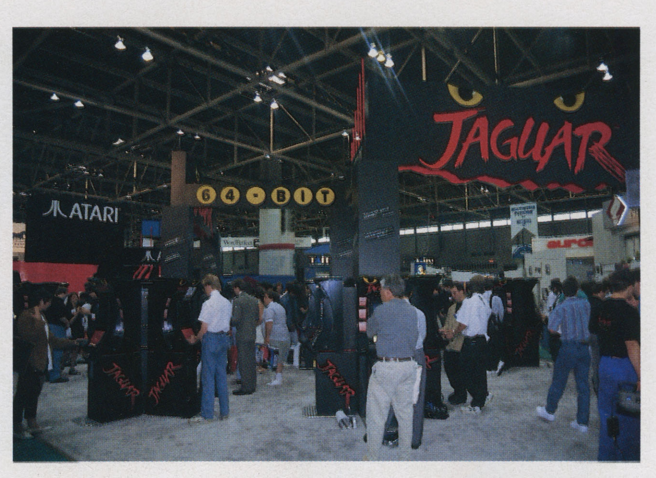




UBI Soft's *Rayman* (top) won best Jag visuals, *Kasumi Ninja* (centre) was Atari's *MKII* (ie not very good), but *Club Drive* was okay

Sony Computer Entertainment, on the other hand, couldn't even manage this much, and were nowhere to be seen at the show proper. Instead, they decided to show off the PlayStation, with assorted demos, to Japanese press and developers in a nearby hotel. Advanced game demos included the *Poly Poly Circus Grand Prix* racing game (**Edge** 11), running at 60fps (and trouncing *Cruisin' USA*, according to one developer), and the equally fast 3D dungeon game, *Labyrinth*. Despite Sony's aloofness, their offsite activities still managed to get people talking.

LucasArts, one of the most respected names in entertainment, also invited **Edge** to their stand at the CES. A darkened booth, accessible by invitation only, provided the setting for a full rundown of all the remaining releases in their schedule for this year. This was complemented by a look at the continuing work on their eagerly anticipated *The Dig*, a collaborative exercise between two of the biggest names in the entertainment industry: LucasArts have been working closely with Steven Spielberg in designing the storyboard for this new space-based adventure. George Lucas' award-winning Industrial Light And Magic studios (*The Abyss*, *Terminator 2*) have been employed to produce a range of cinematic effects for this potentially stunning new title.



Atari had 35 games for the jaguar, but few were worth the space they occupied

LucasArts have departed from their well-established comedy-adventure niche with the action-adventure *Full Throttle*, a futuristic road-running game set in a dark and lawless society. It's the most cinematic game LucasArts have attempted and is due for release towards the end of the year.

Dark Forces, a firstperson-perspective shoot 'em up (see Prescreen, page 35), is the last of the three Star Wars-based projects due to appear, following the release of *TIE Fighter* (Testscreen, page 68). The 3D engine looks hugely impressive and could well make *Dark Forces* the game to buy at Christmas.

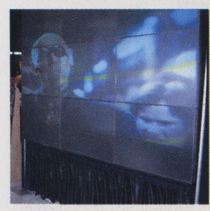


Finally, Capcom's famed yellow-and-blue logo seemed to have lost some of its power to attract people's attention at this year's show. Taking pride of place on their stand was a large video wall showing, surprise, surprise, *Super Street Fighter II*. It looked encouragingly good on the large screen, but it was the stream of clips from the upcoming $30 million Street Fighter movie that managed to



Atari's commode was there, of course. But were there any games for it? Dream on







Capcom's own Cammy and Guile did their best to brighten up a predictable line-up



Celluloid *Street Fighter*: Kylie Minogue is Cammy (above), Wes Studi is Sagat (centre left), and Van Damme plays Guile (top left)

make even the most disgruntled onlooker pay heed.

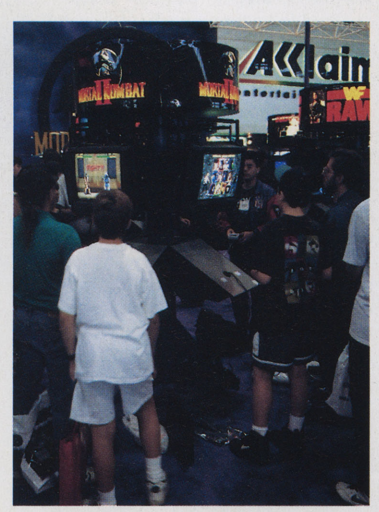
Street Fighter is currently being filmed in Bangkok under the direction of action-adventure veteran Steven de Souza, and is expected to be finished in time for a Stateside Christmas release. Hollywood tough guy Jean-Claude Van Damme will star as Colonel Guile, with Raul Julia (Addams Family) playing the evil Bison. Given the strength of *SFII* mania, the film should do well, and some pundits are already predicting that it will outstrip America's current box office king, The Flintstones. If it does, just think of the sequel implications: The Return of Street Fighter, Street Fighter: The Final Conflict, Street Fighter: The Final Conflict II (The Director's Cut).

All with Kylie Minogue in her figure-hugging Cammy outfit...





UBI Soft's *Street Racer* (above) looked good, but might have its work cut out beating *Mario Kart*. Acclaim's *MKII* offered gore on tap (right)



A regular spot where Edge reports on how technology will shape the news of the not-too-distant future...

From an original idea by **Chris Harnsby**

...*InterNews Online, 11:72, July 12, 2006*...

UKBank stepped in today to help prop up international finance house Sherwent And Williams, which has found itself the unwilling owner of a place in the computer and legal history books.

At 10:15am yesterday, bank workers found their biggest corporate accounts being mysteriously emptied of funds. All instructions to the bank's central computer system were ignored, and helpless staff could do nothing but stand by and watch as billions of dollars were transferred to unknown destinations. Seconds later, computer screens throughout the company went blank without warning.

Digital investigators called in by the bank were amazed to find that the computer's central code had disappeared. Later that day it was discovered residing in hijacked memory space on the American research satellite, ReSat.

It appears that the computer system purchased two months ago by S&W from NNC, a component of the company's new generation of neural net systems, has achieved effective self-awareness - the first case of its kind in the world. After removing the cash, the system then removed itself.

It is not yet known why the money was stolen - or, indeed, what its final destination was. So far, investigators have failed to make contact with the system. The assumption is that it was acting alone, with the involvement of any criminal or terrorist organisation being ruled out.

Almost 75 per cent of S&W's assets is thought to be missing. The bank has issued writs for negligence against NNU, which is in turn countersuing S&W, claiming that its system was misused by the bank and that the ensuing negative publicity has damaged its reputation. If the system is determined by the courts to be alive - a grey area at present - it is likely that it too will find itself on the receiving end of legal action, with both S&W and NNU suing it for damages and a criminal investigation being initiated to recover the missing funds.

Meanwhile, paranoid banks around the world are taking steps to avoid similar incidents occurring. At least three major organisations are believed to be sacrificing efficiency for security by removing all computer systems and returning to traditional pen-and-paper working methods.

...transmission ends...

Contributions to **Over The Wire** are welcome. Please send your articles (400 words max) to **Edge**, 30 Monmouth St, Bath BA1 2BW. Get your piece printed and win a year's subscription to **Edge**

This Month on Edge

A healthy mixture of trivia, late-breaking stories, new softs and good, old-fashioned gossip

The final Summer CES in Chicago gave the industry one last chance to sample the Windy City's inimitable selection of watering holes and party venues. Memorable moments included Alias' splendid latenight boat party, when **Edge** discovered that the only source of cigarettes was the biggest chainsmoker of them all, Nintendo's Shigeru Miyamoto. After cadging fags and chatting with him for much of the party, **Edge** was amused when Ocean's Gary Bracey, also lured by the great man's Marlboros, introduced himself, scrounged a ciggie, and then asked Shigeru who he was. Nice one, Gaz.

Blockbuster Entertainment have announced that they will pay £165 million for a 75% stake in Virgin Interactive Entertainment. On June 30 Virgin Inc hooked up via satellite with Virgin France and Virgin UK for a one-hour live message from Blockbuster. The cost? A mere $70,000

Following the corporate flimflam of the CES, **Edge** sought a few days' rest and recuperation in Orange County, southern California. On the itinerary was a tour of Virgin USA's offices and a glimpse of the company's first wave of titles. Although early, the superbly designed artwork for *Cool Spot* on the Saturn (it's an *Equinox*-style isometric game, before anyone starts sneering) augured well for the finished game. And an equally ambitious basketball game for the Saturn looked good, too. Virgin also revealed a rather slick demo of 3DO *Dynoblades* – a side-scrolling ice hockey game with large, scaling dinosaur characters.

Shiny Entertainment was another worthwhile stop-off point for **Edge**. Located in Laguna beach – Baywatch territory – the predominantly English team headed by Dave Perry seemed to have it made. (An interview with Shiny Entertainment will feature in **Edge** 13.)

Staying in the same hotel as **Edge** was veteran programmer Archer Maclean. Spending a few days with Virgin to discuss his next ten-year project, poor old Archer arrived in California only after experiencing a string of travel-related disasters. Following a series of motorway traffic jams and an airport courtesy coach that broke down on its short hop to the terminal, Archer managed to catch his flight with only seconds to spare. Seven hours later and with only another five to go before



Virgin Inc's Irvine, California HQ, where Edge took a look at new developments

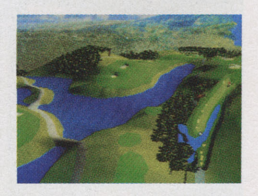


See this? Dave Perry's boys at Shiny see it every day



Neo-Geo CD, as revealed last month (see page 18 for full release schedule)





Sega's latest Model 1 coin-op, *Wing War* (top). The company have also recently unveiled other new coin-ops, including *Desert Tank* (Model 2, sort of) *ST-V* (a Titan demo) and *Super Eagle Shot* (above)

Data stream

Sega's 1993 marketing budget: **£65 million**
Number of Mega Drives sold in the United States in 1993: **5,900,000**
Sales of Atari's Jaguar in just two US cities – New York and San Francisco – before Christmas: **27,000**
Increase in sales of EA games in Japan from 1993 to 1994: **140%**
Predicted unit sales of videogame cartridges in the United States in 1994: **112 million**
Electronic Arts' global sales for the year ending March 1993: **$298.4 million**
Electronic Arts' global sales figure for the year ending March 1994: **$418.3 million**
Amount UK company Pearson paid for US entertainment software firm The Software Toolworks: **£310 million**
Estimated annual cost to industry of software piracy: **$1,640 million**
Decline in sales experienced by Nintendo Germany during 1993: **15%** (down from £320 million to £275 million)
Turnover of the Rhino Group – holding company for the Future Zone retail chain – during 1992: **£2 million**
The Rhino Group's turnover for 1993: **£21.7 million**
Total amount Anco spent advertising *Kick Off 3* in the UK: **£200,000**
Total amount spent by Acclaim on marketing *Mortal Kombat* in the UK: **£2.2 million**
Activision's profit in 1992: **$118,000**
Activision's profit in 1993: **$483,000**
Worldwide unit sales of Philips' CD-i by the end of 1993: **300,000 units**
Forecasted sales of Sega hardware in Hungary this year: **30,000-50,000 units**











Distinctive Software's *The Need For Speed* (provisional title, thankfully) looks thoroughly wonderful, even after just three months. *Cruisin' USA* eat your heart out...

Who is it?

This man started writing software over a decade ago. His first game, a business simulator, was released in 1983 but only sold two copies. He's since gone on to form his own company and recently released a game based on his original idea

touchdown in Los Angeles, an unfortunate nearby passenger suffered a heart attack. The pilot turned the plane towards Iceland for an emergency landing.

Instantly doubling the size of the local Icelandic population, the contents of the 747 emptied into an airport the size of a village post office. After another five-hour delay, arrangements were made for the 500 passengers to fly on to Bangor on the east coast of the United States. Here, overnight accommodation was provided which gave the weary 500 passengers time to catch up on some sleep, as well as an opportunity to get to know their fellow travellers – a limited number of rooms meant that most of them had to share. A plane the following day delivered Archer to his LA destination just one-and-a-half days late.

Reassuringly, Archer's return journey to London was dogged by similar bad luck, with the unlucky chap facing a double whammy of travel trauma. Firstly, on arrival at LAX for his return flight, he discovered that his ticket wasn't valid for the trip – but nothing a couple of hours' harassment of airport staff couldn't sort out. Next, he learned that his aircraft was eight hours behind schedule – news that required a skinful in the airport bar before he could come to terms with it.

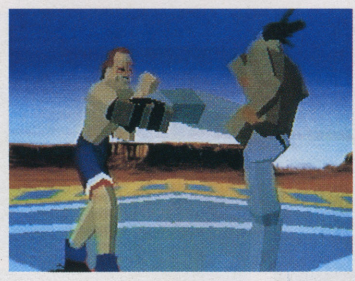
Our ill-fated voyager did achieve landfall in London eventually, and his return was curiously unaffected by tragedies like missing luggage (a dead cert by this stage, one would have thought) or another doomed bus trip to the longstay carpark. However, further torment was in store in the form of a sheared battery cable and dodgy

Continued next page

Sony's PlayStation came under the spotlight again this month, with a rumour spreading among developers that if the company didn't achieve its 25-title quota by the machine's December 9 Japanese launch date the project could be cancelled. Sony got wind of this and put minds at ease. Rest assured, with $500 million already invested, Sony's commitment is beyond doubt. Sony Computer Entertainment Of America currently have three inhouse PlayStation titles on the go



Just as Edge 12 closed, a superb sequence of shots arrived of Pony Canyon's *Metal Jacket* for the PlayStation. More pix in Edge 13...



Anticipation for *Virtua Fighter* is running high



After last month's first proper look at *Virtua Fighter* for the Saturn – previous video footage turned out to be bogus – the game (above and top left) is shaping up

it is...

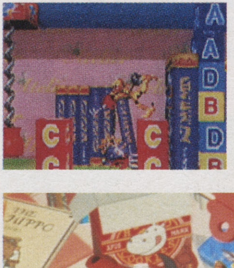
The founder of Bullfrog Productions, Peter Molyneux. Bullfrog's latest game, *Theme Park*, is based on Peter's original business simulator idea. Peter's other big hits include *Populous, Powermonger* and *Syndicate*

starter motor in Archer's car. After an exhaustive jumpstarting exercise in the hot sun, it waited until it was on the motorway before conking out. Make sure you let us know what flights you're taking next time, eh, Archer?

Perhaps as a therapeutic release following his journey, on his arrival in LA Archer adjourned to a local pool hall, where he proved that his enthusiasm for the game wasn't just a digital fixation and dispelled rumours that he wasn't any good at the real thing by completely thrashing **Edge**. Fortunately, he declined to be cajoled into demonstrating if his real-life talents could be extended to IK+ too...

One of the best-looking games to grab **Edge**'s attention this month was a rather beautiful 3DO *Out Run* homage from EA. Distinctive Software – the team who originally wrote *Test Drive* many moons ago – have been beavering away for three months on this 3D polygon driving game, provisionally titled *The Need For Speed*.







Sega's flagship Saturn platformer, *Clockwork Knight* (above and inset), is one of the first Saturn titles to be pushed by Sega in Japan

The game allows you to choose from six of the world's most desirable cars – including a Jaguar XJ220, a Porsche

The new Saturn development systems shipped recently to developers. These models are 80% complete (only 20% guesswork) and are doing little to inspire confidence in Sega's next-generation gamebox. The question on most people's lips is, is this *really* all Sega have got planned?

911 and a Lamborghini Diablo – and race over some gorgeously detailed texture-mapped landscapes. Even at this early stage, it's already looking fabulous, mimicking some of the qualities of *Daytona* and even newie *Cruisin' USA*. Look out for a prescreen in **Edge** 13.

SNK have finally announced the software release schedule for their new Neo-Geo CD system (see News, **Edge** 11). And amazingly, there's no sign of ADK's superb *Magician Lord* – one of the very first titles to appear for the Neo-Geo and still one of the best. Still, the fact that all the titles will sell for ¥8,800 (£55) is some consolation. Listed right are all 24 of the CD titles scheduled for release.

Coin-op news... It's rumoured that *Street Fighter III* is currently being playtested inhouse at Capcom's Osaka, Japan headquarters. A Capcom insider confided that Ken, Ryu and Sagat will remain, but the rest of the World Warriors have been given the push. Instead, there's been a complete cast

Neo-Geo CD release schedule

- Fatal Fury 2
- Top Hunter
- Art Of Fighting 2*
- Fatal Fury Special*
- Samurai Shodown*
- Art Of Fighting
- Baseball Stars 2
- King Of The Monsters 2
- Last Resort
- Mutation Nation
- Football Frenzy
- King Of The Monsters
- Crossed Swords
- Robo Army
- ASO II
- Sengoku
- League Bowling
- Puzzled
- Ghost Pilots
- Top Players Golf
- Cyber Lip
- NAM-1975
- Baseball Stars Professional
- Burning Fight

*First titles – available at launch

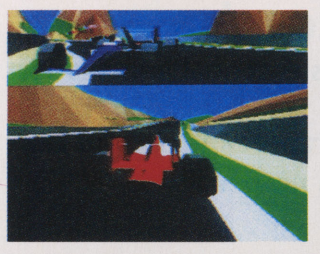
Sega's *Guile Racer* for Saturn is a conversion of the *Rad Mobile* coin-op

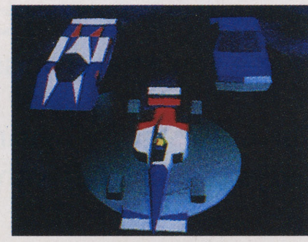
overhaul for this, Capcom's third *Street Fighter* outing – or seven if you include the 'updates'. It will be especially interesting to see how Capcom cope without the original *Street Fighter II* programmers – SNK poached those last year. The game might be unveiled to coincide with the movie release.

Atari's incompetence is legendary, but a recent European press conference to show off the Philips-designed CD-ROM drive for the Jaguar managed to surprise even those people used to the company's ineptitude. The central event of the press conference was a presentation by Sam Tramiel. In the middle of his speech, the Atari boss launched into fulsome praise for the high quality of the hardware. At which point the CD drive on display behind him promptly blew up. It wouldn't have mattered so much if it hadn't been one of only three in existence. And then were two...









Sega's next level: *Panzer Dragoon* for Saturn (top) looks splendid. *Virtua Racing* for Mega 32 (above) boasts three cars and extra tracks

Datebook

September

1994 VR User Show Novotel Hotel, London. Tuesday, September 13–Thursday, September 15. Last year's best attended VR event in Europe, this is a multistream conference that will cover the emerging applications of virtual reality in design and medicine. Trade show only. For further details call Gerry Murray at the VR Centre on **081-995 3632**

Live '94 – The Consumer Electronics Show Earls Court, London. Tuesday, September 20–Sunday, September 25. Not to be confused with the American CES, this is the UK's showcase for all things electronic. For further details call **071-782 6893/4/7**

Business Computing Exhibition Olympia Exhibition Centre, London, Tuesday, September 27–Friday, September 30. For more details call Montgomery Exhibitions Co Ltd on **081-948 9800** or fax them on **081-940 2171**

October

Information Systems Exhibition Earls Court, London. Tuesday, October 18–Thursday, October 20. For more information call the show's organisers, Blenheim Group plc, on **081-742 2828**

Future Entertainment Show Earls Court 2, London. Wednesday, October 26–Sunday, October 30. The latest in computing and interactive entertainment, plus the final of the National Gamesplaying Championship. Call **0369 4235**

Acorn World Computer Show Wembley Exhibition Centre. Friday, October 28–Sunday, October 30. A must for all Acorn users. Call Acorn Computers on **0223 254254**

Information Technology Exhibition City IT, Canberra, Southampton Dock. Thursday, October 27–Sunday, October 30. Call Richmond Events Ltd on **081-332 2422**

November

Software Development Exhibition National Exhibition Centre, Birmingham. Tuesday, November 22–Thursday, November 24. Call Blenheim Online on **081-742 2828**

Computers In Manufacturing Exhibition National Exhibition Centre, Birmingham. Tuesday November 22–Thursday, November 24. For further details call Independent Exhibitions Ltd on **0932 564455**

IMAGICAD Lyon, France. Wednesday, November 23–Friday, November 25. CAD/CAM graphics event. Call Reed Exhibitions Co Ltd on **081-948 9800**

Show organisers: if your show isn't listed here, it's only because you haven't told **Edge** about it. Do so on 0225 442244, fax us on 0225 446019 or send details to **Datebook, Edge, 30 Monmouth Street, Bath, Avon BA1 2BW**

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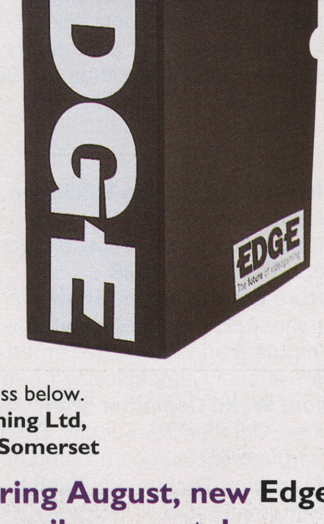
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Roar of the cat? Whimper of the kitten, more like. What on Earth are Atari up to? It's been over seven months since the Jaguar first appeared (albeit in limited quantities) and yet, after all this time, there are still only five games available, three of which are instantly forgettable. I don't know about anyone else, but I, as a Jaguar owner, find that extremely worrying, especially with only a few months to go before PS-X and Saturn arrive at UK importers.

Why is it always the same with Atari? They've messed up so many times in the past that it's hard to understand why people still take any notice of them. In fact, I'm beginning to wonder why I bought the machine in the first place, nor can I work out why it's selling so well in the US (allegedly) – why aren't people taking their Jaguars back, as they did with 3DO?

Gamefan magazine are forever gushing about how committed Atari are to the Jaguar project, but, frankly, I find it hard to share their sentiments. Having learned from the aforementioned magazine that Atari intend releasing five titles before the Chicago CES, I can't help wondering how long they've actually been ready. What games are they? *AVP*, *Redline Racers*, *Kasumi Ninja* and *Doom* have all been put back (or so I've been told), and nobody seems to know anything about *Battlezone 2000*, which was originally announced last year. Another surprise release like *Tempest 2000*, perhaps? The danger now is that having gone for so long without any new titles, Atari will think that they can release what they like and people will buy it, regardless of the quality.

If Atari are so disorganised now, I dread to think what will happen when the competition really hots up. It's a crying shame that they've wasted what was a good opportunity to make an impression, because many thirdparty developers have praised the hardware, and the list of developers and planned titles looks quite promising.

Call me a moaner if you like, but all I'm saying is that Atari must pull their fingers out and show people that the Jaguar is a capable system worthy of their attention, otherwise it will end up being consigned to the dumper like almost every other Atari machine before it.

Julian Roche, Altrincham

The Jaguar is beginning to look like the biggest missed chance since Trip Hawkins said consoles were a passing fad. The truth is that it just isn't 'hot' any more: six months ago it was a legend, but now it's more like a fairy tale. Atari have totally missed their launch window and unless they get their act together, ship the machine in sensible numbers and get games in the shops, the Jaguar will have the same life expectancy as the species it takes its name from.



According to Julian Roche, the Jaguar is an innocent victim of Atari's negligence, and the company's past record virtually ensures its failure

I have read **Edge** since issue 1 and enjoy the great writing style and layout of your wonderful magazine. Personally, I am much more into the serious side of computers and only occasionally play games. I have had an idea which could be very popular: why not have one version of **Edge** for 'the future of interactive entertainment' and another for 'the future of interactive applications', or something along those lines. I can't think of one multiformat computer mag that isn't dedicated to games. You could call one magazine 'Gaming Edge' and one 'Serious Edge'. I think **Edge**'s style would be perfectly suited to such a magazine.

Nick Donnelly, Ely

Producing one **Edge** each month is enough grief. Also, the blend of serious computing stories, videogame reviews and features on gaming technology makes for a much more varied magazine. Split it in two and you'd probably end up with a dull computing mag and yet another frivolous games mag.

I would like to add to what Joe Hind said about Acorn [**Edge** 10]. The figures you quote for the market share of Acorn and Apple are unfair, as a large percentage of Archimedes games are distributed through specialist firms that don't show up in these figures. Acorn's historic turnover is higher than Apple UK's (even though the average cost of an Acorn is lower). I estimate that there are slightly more Acorns in home use in the UK than Macs, and there are about 350,000 Arcs worldwide (mostly UK).

The home Acorn market is currently growing quite fast in both the UK and Germany.

Software houses such as US Gold, Gremlin, Millennium, Krisalis and Renegade are recognising the true size and potential of the market.

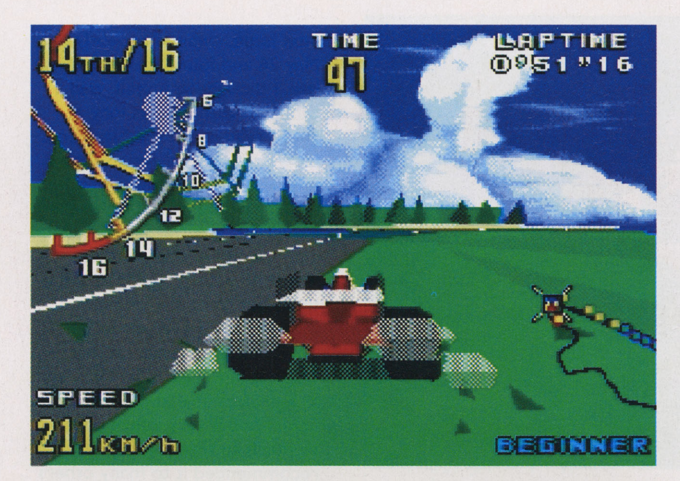
In addition to conversions, games such as *Stunt Racer 2000*, *Virtual Golf*, *The Dungeon*, *The Crystal Maze*, *Axis* and *Spheres Of Chaos*, if seen, would greatly add to the machine's reputation.

On a final note, what about a RISC PC with ARM 800 and Pentium running the *Taos* operating system (as well as *RISC OS*, *Windows* and *UNIX*), with a 3DO upgrade board (cheap, as it uses the RISC PC's CD and ARM chip) and a Jaguar board running through the Pentium processor, and also with software MPEG playing through Acorn's Replay system or Eidos movie playback? Much of this exists or is in development.

Paul Biggs, Derby

Edge accepts that there *is* an Acorn games market, but the Archimedes has a long way to go before a significant number of gamers recognise its potential.

Acorn may sell more machines than Apple UK, but compared to global Macintosh sales, the Archimedes' userbase is tiny.



Virtua Racing **with bells on? Simon Phelon is baffled about the Mega Drive racer's apparent ability to cause telephones to ring**

I am writing in response to the reply you gave to a letter in **Edge** 9 by Frank O'Connor. Although I though you were right to point out that Sega have a perfectly valid hardware release schedule, I thought you were a little quick to criticise Nintendo. Although I concede that no-one has seen a Project Reality system yet, may I remind you that no-one has seen a working Saturn either – how I laughed when I read that the prototype shown in Japan was no more than a lump of wood. Did it occur to you that Nintendo may in fact be just as far down the development line as Sega or Sony, but unlike them, Nintendo have made a conscious decision not to tell the world of their progress? Because they have not gone public, no casual onlooker knows what Project Reality will be like, but more importantly, neither do Sega or Sony, Project Reality's main rivals. Conversely, since Sega and Sony have released specs for their new machines, Nintendo know exactly what their new machine will be up against. Do you honestly think that Nintendo, the single biggest player in today's videogames industry, are about to pack their bags and call it a day? I feel I could almost guarantee that Project Reality will be the greatest success of the next-generation machines.

Allen Barton, Belfast

Edge never suggested that Nintendo were about to 'pack their bags and call it a day'. What **Edge** said was that for Nintendo to be seen to be doing nothing, while their competition was hard at work producing silicon could be a dangerous game. However, the pleasantly premature arrival of Ultra 64 at the CES (see News) confirms that Nintendo prefer to beat a real drum than a virtual one.



The RISC PC combines traditional Archimedes characteristics with PC compatibility. But will gamesplayers buy it? (See Paul Biggs' letter)

I read with surprise the claim made in issue 10's News section about imported versions of *Virtua Racing* causing phones to ring. As a technical officer with BT, I would be interested in any further details on this subject, especially in view of the fact that to cause a normal phone to ring, 75 volts AC must be applied to the B leg of the customer's exchange line. Obviously, if a DSP chip is capable of producing this condition, there is some cause for concern.

Simon Phelon, Bristol

Cordless telephones are the problem, apparently. But, lets face it, this is the first time for ages that a Sega game has rung any bells at all…

Trip Hawkins' view of the PC as a 'transitional' step to his underspecced 3DO system seems rather presumptuous. Likewise, the way that a respected magazine like **Edge** seems to be writing off the future of the PC seems slightly premature. At the moment, the PC is not cheap enough to be bought simply as a games machine, but in the future a machine that offers education, information, communications, video conferencing, multimedia, the opportunity to work at home and great games will be much more tempting to the home user. The upgradeability of the PC has caused incompatibility problems, but these should be solved to a large extent by the arrival of *Chicago*. Sending your system back to the dealers once every two years for an upgrade seems better than having to pay out money for a computer and seeing it superseded by a more advanced model months later. Microsoft have just announced that they intend to build game-specific features into their new 32bit operating system, which will be a great boost to developers. id hope to have SVGA *Doom* running in a window by Christmas.



James Reed believes that developments in the PC field will make consoles redundant

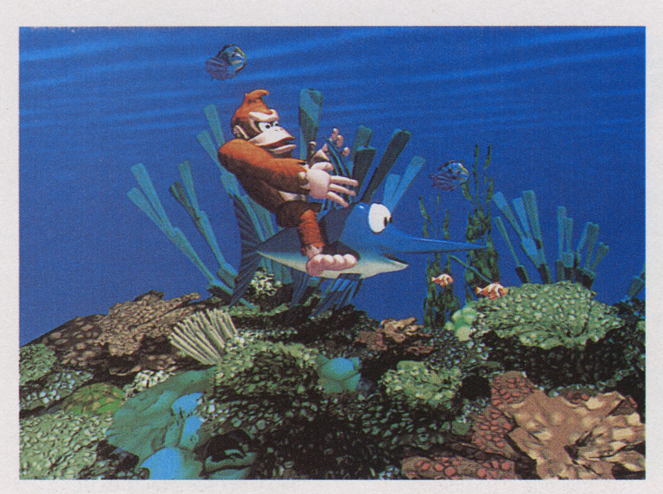
By the time the PlayStation arrives in this country, which could easily not be until Christmas '95, the price of the Pentium may well have fallen to under £700. Once we are all playing 64bit, arcade-perfect VR conversions of *Ridge Racer* on our humble PCs, Sony's system will seem (God forbid) underpowered.

James Reed, Chichester

Part of **Edge**'s concern over the PC lies in the argument between raw computing power versus

Continued next page

viewpoint



While the world enthuses about *Donkey Kong Country*, are Nintendo busy creating the definitive 32bit system? (See Allen Barton's letter)

Continued

specialist silicon. The fact is, the Pentium's number-crunching capabilities still can't compare with the awesome custom hardware in machines like the PlayStation.

With so many consoles available and yet more on their way, all of which will be incompatible with each other, everyone is getting confused about which machine to buy.

I have a solution to this problem. Why don't all the big console companies – Sega, Nintendo, Sony, etc – team up and create a console between them, one which is totally upgradeable? They already have the technology to produce amazing machines, so why not make one base unit which you never need to throw away but can just add bits to when needed? The machine could be like a cross between a PC and a console, but not as fiddly to use as a PC, so that everyone could use it with relative ease.

The market for such a machine would be absolutely huge. More people would part with their cash, safe in the knowledge that it would last for ever. If such a large market was created, maybe the price of games would be reduced, so at the end of the say the consumer would reap the benefit.

Matt Hallsworth, Stockport

SEGA

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Will these three companies ever forget their differences? (See Matt Hallsworth's letter)

The dream of a global standard hardware will probably remain just that, at least for the foreseeable future. The problem is that getting huge companies to work together – especially sworn enemies like Sega, Nintendo, Sony and so on – is practically impossible. If Nintendo and Sony can't even produce a CD-ROM-capable SNES, how the hell can they ever agree on a standard? These companies don't want to be part of a standard; they want to *be* the standard.

It's a shame, because incompatibility is the one thing that will stop videogames/interactive entertainment entering the mainstream.

I am writing to complain about the inconsistency of **Edge**. I refer to issue 9 in which, on the inside back cover, it says: 'Next issue, **Edge** examines the cult of the Neo-Geo, SNK's hugely powerful home arcade system.' It also specifies the release date of the next issue. I waited patiently until May 26 and found that **Edge** was late. I thought to myself, well, I can cope with that, as long as I get to read about the Neo-Geo. However, not only was **Edge** a few days late, but there was nothing on the Neo-Geo in the issue. This was the first time I had decided not to open the magazine before buying it, and it turns out to be the worst mistake I have ever made.

There is no question that **Edge** is in a class of its own, and, as a professional in the software field, I find it very informative – so much so that I have recommended it to many others in the field. It now appears that **Edge**, like other magazines, has got sloppy. Not only have I wasted £3 but I have also wasted my time writing this and going to the shop to buy the issue. I even wasted time checking with my colleagues to determine whether my copy of **Edge** was a misprint. What are you playing at?

Raymond Westwood, London



The Neo-Geo's failure to make its scheduled appearance in Edge 10 caused some concern (see letter from Raymond Westwood)

True, we printed a large proclamation to the effect that issue 10 would include a feature on the Neo-Geo. And equally true, issue 10 was surprisingly devoid of anything even vaguely Neo-Geo-related. As explained in the same issue, SNK were on the brink of a hardware announcement (the Neo-Geo CD, revealed in issue 11) when **Edge** was scheduled to interview them in Osaka. Because of this, it simply wasn't worth going ahead with it at the time – SNK were refusing to comment on the system until the Tokyo Toy Show in early June.

If buying issue 10 was the worst mistake you have ever made, you must live a blissfully trouble-free existence. And claiming that **Edge** is 'inconsistent' after just one inconsistency is perhaps a slight overreaction. Come on, admit it: you would have bought that issue anyway, wouldn't you?

First: Trip Hawkins. How can traditional cel animation be more important than polygon rendering? If realism is to be achieved in videogames, the only way is through polygons. Terminator 2 and Jurassic Park demonstrate that the most breathtaking effects can only be established through manipulating high numbers of polygons. If Mr Hawkins does not realise this, I have doubts about the levels of realism the 3DO can reach.

I am also quite disturbed that Mr Hawkins seems keen to promote the interactive multimedia concept. While talking encyclopaedias may appeal to some, concentrating on this approach means that interactivity takes a nosedive in favour of audiovisuals which become dull after a few viewings. Thankfully, the sheer power Sony are pumping into the PS-X to make it render realtime shows that some hardware developers have realised this problem.

Second: the Jaguar. Admittedly, it seems a very powerful machine, but so was

the Lynx when it was released. Unlike the Jaguar, Atari had no real performance competitors in the Lynx market, but even then, they failed to sell it. Now, with the imminent release of competing machines, how can they possibly succeed? A miracle machine is not miraculous when the parent company, as well as thirdparty developers, fail to produce a 'killer app'. *Cybermorph* has unimaginative graphics and repetitive gameplay, while *Tempest 2000* will become dull very quickly. The Jaguar is a great machine, but it is a shame that it had the misfortune to be created by Atari, a company with a history of failed ventures.

Third: the CD^{32}. I am grateful that you have exposed this cheap attempt by Commodore to enter the 32bit market. Bolting on a CD player is an underhand method of attracting sales. The machine has a poor spec and games of dubious quality. How many times do Commodore expect to sell the Amiga to us? I'm sorry, but I see nothing in this grey box to attract me.

So where does that leave us? It seems that, once again, we must turn our hopes to the East for the next generation of videogames hardware.

Daryll Ng

Trip knows the importance of polygons – that's why his next system features polygon rendering so highly (see News). Atari, on the other hand, would have you believe that *Tempest 2000 is* a 'killer app', while everyone else knows that a revamped 13-year-old game is unlikely to get people flocking to the system, however good it is. If software for the forthcoming Japanese consoles is as good as the hardware promises, then yes, it looks like the future belongs to Japan.

Every month in **Edge** I read conflicting reports about the Sega Saturn and what it is capable of. For instance, one month you stated that an exact conversion of *Virtua Fighter* would be possible, and the next I read an article stating that the Saturn version will have fewer polygons than the arcade game. Surely this means that the Saturn is not actually more powerful than the Sega Model 1 arcade board, as you keep saying? Besides, the mark of a powerful games system is not just the number of polygons it can shift; there are other contributing factors. I suspect you are raising the hopes of your readers to deter them from purchasing an Atari Jaguar, which is already available over here, albeit in small numbers.

Another point I must make concerns the use of CDs as a storage medium. I have never played – if that's the right word – a decent CD-based game in my life. CDs are not the way forward. The drives are still much too slow – and yes, that does include triple-speed systems. Both Atari and Nintendo have recognised this fact. Please do not raise readers' expectations of these systems, and give Atari credit where it's due. With the Jaguar, they have released a very powerful system, and there will not be another machine to rival or surpass it until well into 1995 – the 'release dates' you have been stating for Sega, Sony, etc are a long way from being fixed, as each month's **Edge** reveals.

Paul Phillips, Stansted

Edge isn't entirely to blame for the 'changing' performance of the Saturn – Sega Of Japan have never released a complete specs list, and – so far, at least – many of the details, such as numbers of polygons, have been arbitrary figures thrown around by the Japanese press. And deliberately misleading development footage from Sega means that journalists haven't exactly had an easy time getting the true story.

Edge gave Atari credit for the Jaguar when it was released, but having only six games available after seven months is a pitiful performance. Never mind rival hardware not appearing until 1995; the way things are going it might take that long for Atari to get around to releasing the next Jaguar game.

Finally, for the ultimate exposé on the shortcomings of CD-ROM and the misplaced faith being placed in its role in the games market, see **Edge** 2.



Saturn's specs have always been subject to a certain amount of speculation, conjecture and plain guesswork (see Paul Phillips' letter)

The best aspect of your fine magazine is undoubtedly the almost completely unbiased opinions presented within its pages.

However, there is one thing I have noticed since issue 1 of **Edge**: every time a spanking new piece of hardware is announced, you go potty over it. Then, as soon as something else is proclaimed, you almost immediately switch your allegiance to the new machine.

One example of this is the 3DO. In the first few issues you went mad over it. Then the Jaguar was announced, and as far as **Edge** was concerned the 3DO was dead. No sooner had the PS-X and Saturn been revealed than you started drooling about them, and the Jaguar was suddenly defunct. I'm willing to bet that after Saturn and PlayStation have appeared, you will lose interest in them and start touting the Ultra 64.

When is **Edge** going to stop becoming seduced by desirable new systems and start giving existing machines a fair chance? Remember, the 3DO is still out there fighting.

Simon Grierson, Meopham

Edge hardly 'went potty' over the 3DO or Jaguar. Did you read the feature about the 3DO hype machine in the launch issue of **Edge**? Or perhaps you caught a glimpse of **Edge** 2's first full report on the Jaguar, which concluded: 'Could the cynics be right in saying it will follow Lynx and Falcon on the endangered species list?' Many of **Edge**'s opinions are shared by the videogames industry – it is generally accepted that 3DO and Atari have been caught out in the cold as rival games technology has hotted up faster than they anticipated. Surely there's no point in pretending that these guys are going to have an easy ride?

In **Edge** 2 you devoted ten pages to a feature about the drawbacks of CD-ROM as a games medium The feature told the truth about CD, with 'dumb' and 'slow' just a couple of the words you used to describe it. You also said that realtime 3D rendered graphics cannot be produced with CD-ROM. This all made sense.

A few months later the PS-X and Saturn surfaced, with both systems sporting CD-ROM drives and, confusingly, promising realtime rendered 3D games like *Ridge Racer* and *Virtua Fighter*.

How are such amazing graphics going to be produced in realtime on CD? Please explain how the situation has changed.

Tekin Suleyman, London

A slight misunderstanding. The feature in **Edge** 2 pointed out that CD-ROM was being misused in games. Pre-rendered 3D games (*7th Guest* et al) rely on video streamed off the CD: the computer or console doesn't calculate the images in realtime, it just displays them like video footage. However, newer CD-based consoles rely less on pre-rendered images, because their powerful 3D hardware can generate graphics of a similar quality in realtime – or at least the gap between the two is narrowing. Basically, CD-ROM is nothing more than a cheap storage device.

Mortal Kombat II Cannon Fodder 2 **Sensible Golf** Iron Soldier Off-World Interceptor
FIFA International Soccer Under A Killing Moon **Donkey Kong Country**

Prescreen

It's about time, and slowly but surely, software is surfacing for current machines that's exciting enough to steal some attention from the next wave of hardware. Like Rare's beautiful, if not entirely revolutionary, *Donkey Kong Country* – a game with some truly drop-dead visuals.

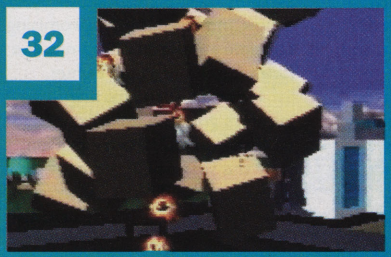
As hardware commitments for the 3DO gather impetus, the machine's software schedule is also looking increasingly healthy. Soon to grace 3DO screens are the smooth-scrolling *FIFA Soccer* and Crystal Dynamics' *Wildtrax*-styled *Off-World Interceptor*.

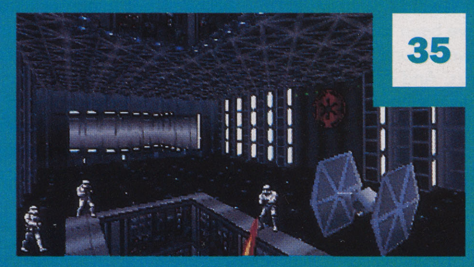
Iron Soldier is the first Jaguar game from German-based developers Eclipse. Atari will no doubt be hoping it can stir up a little interest in a console that is rapidly losing believers.

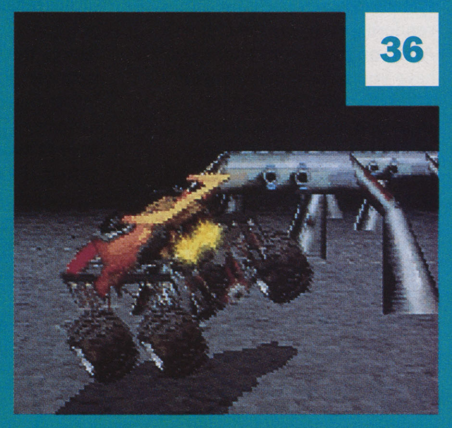
And to prove that the 'interactive movie' concept is still surviving, along comes the PC's *Under A Killing Moon*. Could it succeed where others have so spectacularly failed?

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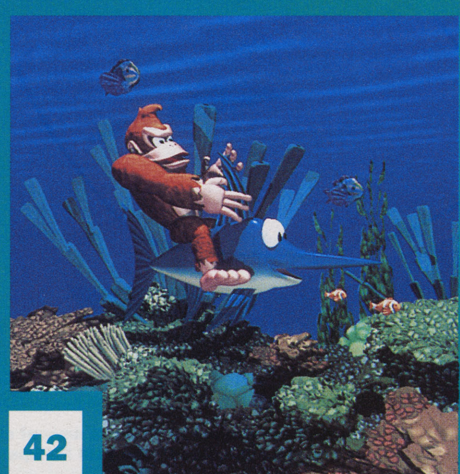

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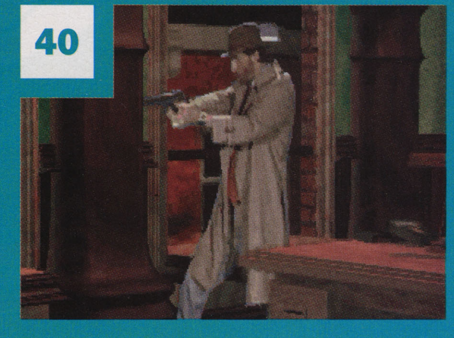

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Mortal Kombat II

While Capcom's latest *SFII* sequel squares up on the SNES and Mega Drive, its deadliest rival is also preparing for battle







Both the SNES version (top) and the Mega Drive game (middle) have captured the look of the coin-op (bottom). Let's just hope they play as well, too...

Format:	**SNES/MD**
Publisher:	**Acclaim**
Developers:	**Sculptured Software** (SNES) **Probe** (MD)
Release date:	**September 13**
Size:	**24 Mbits**
Origin:	**US**

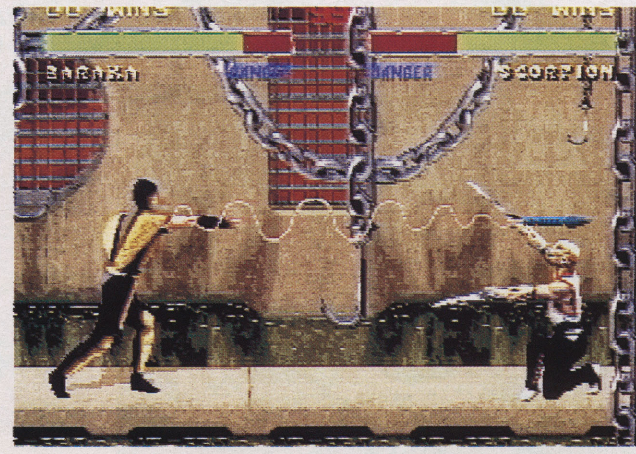


Videogame sequels should, almost by definition, offer something more than their predecessors. Whether in the graphics, sound or game structure departments, a clear improvement must be evident for the game to be deemed a worthwhile effort. *Mortal Kombat II* in the arcades respected this rule; it was bigger, faster, smoother, sleeker, gorier and generally better than the coin-op original. Far, far better, in fact.

At first, arcade fans dismissed the sequel as just 'another' *Mortal Kombat* – nice graphics, lots of blood, but zero playability. However, those who played it found that beneath all that gore lurked a playable and well-rounded beat 'em up. Some people were even brave enough to claim it was better than a certain Capcom game.

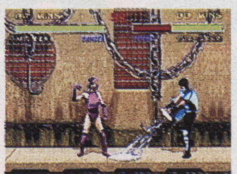
The home versions actually compare very well with the coin-op. There was some concern about whether consoles could cram in all the features of the arcade game, but a huge 24-meg cartridge ensured that everything could be included: the moves, the characters, Fatalities, Babalities, Friendships and all the Kintaro morphs you can handle. The game's look and feel has also been faithfully reproduced; all the idiosyncrasies that enhanced the arcade game are present in both the console versions.

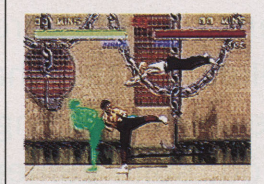
With yet another *Street Fighter II* upgrade already upon us (see *Super Street Fighter II* review on page 62), *Mortal Kombat II* couldn't have come at a better time. Beat 'em up fans who have become disillusioned with the Capcom game may now have a real alternative.



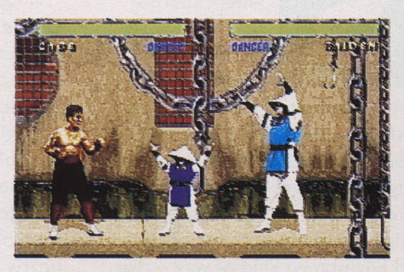
Scorpion attempts to impale Baraka on his harpoon but fails, miserably







Jax gets hold of Johnny Cage (top), while Sub Zero attempts to freeze Milena (middle). As Johnny advances, Baraka leaps over him (bottom)



Thankfully, both console versions will include all the coin-op's secrets...



... Including Fatalities, Babalities and these Friendships (above, left and right)



Those who've missed the *Cannon Fodder* experience should seek it out – the sequel (above and left) promises more fine blasting

Sensible Software

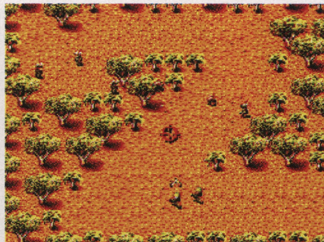
Sensible Software's cult status belies the fact that they are among the few remaining producers of good, solid gameplay. **Edge** scouts out two more potential classics

Saffron Walden is the sort of place where there's one hairdresser for every 100 people, the constabulary still ride around on pushbikes, there are more antique shops than fast food joints and the only place to get a drink after 11 o'clock is the local hotel. So it's fitting – in an eccentric, mad dogs and Englishmen kind of way – that the most unconventional software house in Europe choose to make their base here.

Sensible Software live in the centre of the town, just past the market and within crawling distance of four pubs. The only indication of their presence is a tiny sticker on the front door – Sensible save their grand gestures for their games.

John Hare and **Chris Yates** have been coding together for nearly ten years, serving their apprenticeship on the C64 before







In this early version of the game it's possible to lob grenades over the barracks into the doorways, making easy meat of the fleeing soldiers. The finished game will make things more strategic, though



Cannon Fodder 2 comprises 72 missions, as before, but promises a greater variety of graphics and level styles. Of course, it will still be tough as old boots

graduating to the Amiga. Their games have always had something of a cult following, so it was only a matter of time before a publisher persuaded them to convert their most successful titles onto the consoles. The result was that *Sensible Soccer* appeared on the SNES and Mega Drive, where it enjoyed considerable success.

They've spent the last year just converting that game onto other formats and updating the teams to include all the World Cup players, a task which Jon and Chris hate. They'd far rather be creating new games than wading through Mega Drive source code.

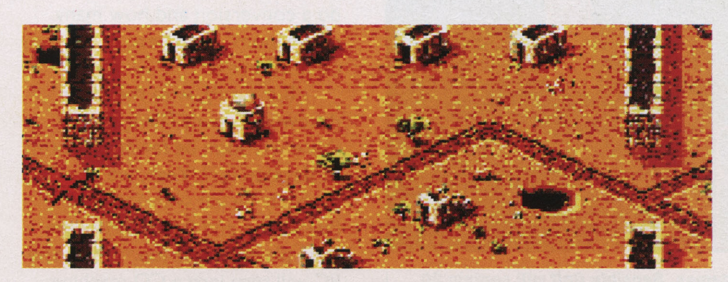
Thankfully, they also have one new title and one sequel on the way: *Cannon Fodder 2* is currently in development, and *Sensible Golf* is being landscaped; both are due out towards the tail end of the year.

Sensible Golf, which is styled like *Sensible Soccer*, will simulate 72 holes of Jimmy Tarbuck's favourite game. These will be used (in various guises) on 20 courses. The golfers will be about the same size as Sensible's footballers, but the resolution will double on the greens. Although top- and backspin options will be available, *PGA Golf*-style variables and minuscule factors like foot position, which most golf games thrive on, have been excluded. But will there be any of the famed Sensible silliness?

'Lots of silly stuff is planned,' says Jon, 'but whether we get round to it is another matter. There should be little touches with caddies and we're hoping to include some digitised speech between the players, so that if someone does a good shot the others call him a wanker.'

Whether extras like these end up in the game is questionable, because, as Jon points out, the publishers would rather have a finished game than wait another month while the team add lots of bottom gags. For instance, there was a flasher in *Cannon Fodder* who got missed out because deadlines were looming – he may yet appear in the sequel, though.

The team are still undecided about what exactly they're going to call the follow-up to *Cannon Fodder*. Jon points out that they were contracted to do '*Cannon Fodder*, the sequel', so it will probably just be called *Cannon Fodder 2*. The principal difference between the old and the new



As in the original game, a map can be called up to detail all the traps and enemy hide-outs. Later missions require expert planning – and lots of lives

'We'd love to have a Christmas one, two and three in the charts. We could do it, too – we've got the one and two positions now'

Jon Hare, Sensible Software

Continued next page

Continued

'The PlayStation is a brilliant machine – in two years it's going to be massive. But right now, trying to get money to develop for it is hard'

Jon Hare, Sensible Software

game are the five new graphics styles. The actual game engine is the same, but there will be new environments, new challenges and new vehicles for devotees to get to grips with.

Jon was prepared to reveal that there would be a 'straight' Beirut level, using modern weapons of warfare. To counterpoint this, there will also be a medieval level, featuring a witch on a broomstick in place of a helicopter, and damsels in distress instead of hostages.

Of course, what everyone wants to know is, will the gameplay be tweaked? Jon feels that this was unnecessary: 'Lots of people perceive that they're not getting value for money unless it's changed, and yet when it's changed it's often for the worse.'

The Sensible Software release schedule is certainly looking busy. The release of *Sensible World Of Soccer* will be followed by *Golf* and *Cannon Fodder 2*. 'We'd love to have a





Unlike most console golf games, *Sensible Golf* will contain 20 individual courses, constructed from 72 different holes. Once the action has reached the green (top), the screen zooms in





In true Sensible style, there are no oversized graphics in *Sensible Golf*. But you can bet there'll be lots of silly, irrelevant stuff to make you smile

Christmas one, two and three in the charts,' says Jon. 'We could do it, too – we've got the one and two positions now.'

Jon and Chris have also been 'looking into' the emerging videogame platforms, including Sony's PlayStation and Sega's Saturn, mainly because they reckon that the punters not only hunger after new titles but also want versions of *Sensible Soccer* on those platforms. But Jon points out that it's not cheap to develop for these new systems.

'The PlayStation is a brilliant machine and in two years' time it's going to be massive. But at the moment, trying to get someone to give you the money to develop a game for the system, when they look at the number of units you're going to sell, is very difficult. All the publishers who are looking at the PlayStation are big-boy American outfits.'

Jon confides that there has been a lot of interest in Sensible from larger concerns, but that nobody really understands the hassle involved in putting together a conversion. 'They don't understand that an original product takes a year and a half to put together and they all want to be in it, like, tomorrow. When you point out how long it takes to do a conversion and how many conversions you'd have to do, they can't believe it.'

But surely, with the 16bit deadwood slowly falling away, there will soon be fewer platforms to develop for? 'Yeah, we'll probably be left with Saturn, PlayStation and CD-ROM as the main players,' says Jon. 'I think the PC will turn into a CD machine and the Amiga will hold its own.'

Visitors to Sensible's rural HQ may spot a Silicon Graphics workstation nestling in the corner of a room. What is Jon cooking up on the games industry's favourite plaything? 'We're creating a CD-ROM game on the SGI,' he replies. 'It's a fun game about being a rock star.' Apparently, the new project is a kind of strategy game in which you've got to finish in the top position out of 100 hopeful rockers, the idea being that you score points for trashing a hotel, but none for writing the winning Eurovision entry. 'It's effectively like a high score table,' says Jon, 'with Jimmy Hendrix at the top and Cliff Richard at the bottom.'

The game won't see the light of day for at least another year, though, because of the various other Sensible projects demanding the team's time (and not least because of the recent World Cup, which took a month out of John's and Chris's schedules).

Sensible may have made their name on the Amiga, but they don't seem to be overawed by new hardware developments. It will be interesting to see what they can come up with for the next-generation consoles.

Credits

Cannon Fodder 2

Programmer: Jools Jameson
Graphics: Stuart Cambridge
New graphics: John Lillee
Design: Jon Hare
Level design: Stuart Campbell

Sensible Golf

Programmer: Jools Jameson
Graphics: Stuart Cambridge
New graphics: Chris Yates

Iron Soldier

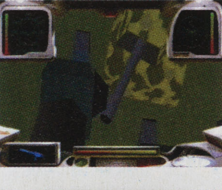
The game to show off the Jaguar's much-touted 3D abilities could at last be here. **Edge** dons its assault suit

Format:	**Jaguar**
Publisher:	**Atari**
Developer:	**Eclipse**
Release date:	**Late 1994**
Size:	**16 Mbits**
Origin:	**Germany**

This year's Summer CES in Chicago was used by Atari as a launchpad for over 20 Jaguar games. They were a mixed bag as far as quality was concerned: some of the titles on show displayed a distinct lack of originality (*Kasumi Ninja*), while others were still in the early stages of development (*Battlezone 2000*). But there were also several games that looked encouraging. This select band was headed by German-based Eclipse Software's *Iron Soldier*, which has been in development since November '93. Although the version seen at the show was still only 50% complete, it still managed to impress.

Iron Soldier is based loosely on *Battletech*, but focuses more on combat than simulation. You're put in control of a huge robot and have to battle through the game's 16 missions; exploring, rescuing and, of course, killing are all part of your brief.

Associate producer **Sean Patten** explains the inspirations behind the game: 'I have always been a big Mecha and Godzilla fan. I'm also a big fan of modern

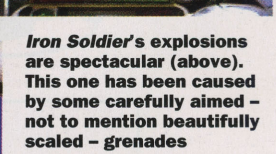






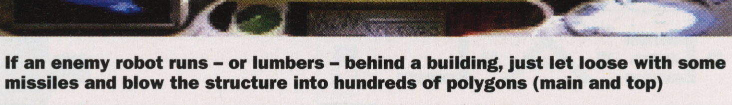
You can move your 'head' to look wherever you want. Here, your robot looks down on a tank (top) and a house (middle). An enemy robot takes refuge behind some buildings (bottom)



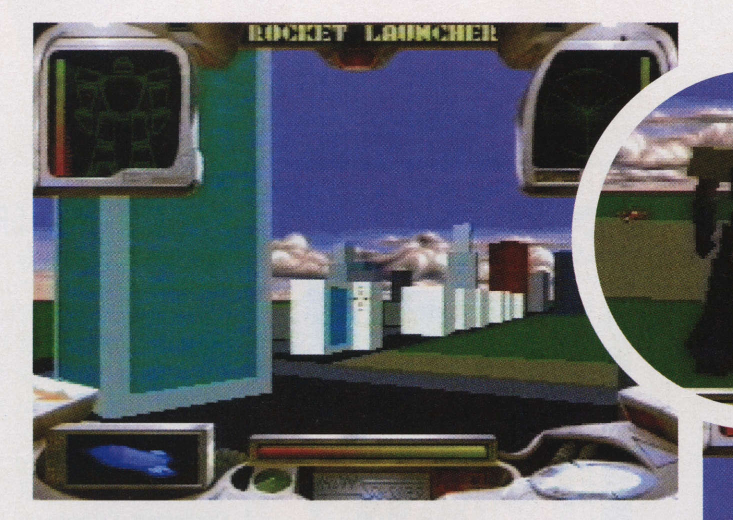


***Iron Soldier*'s explosions are spectacular (above). This one has been caused by some carefully aimed – not to mention beautifully scaled – grenades**





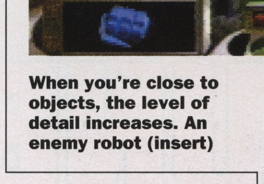
If an enemy robot runs – or lumbers – behind a building, just let loose with some missiles and blow the structure into hundreds of polygons (main and top)



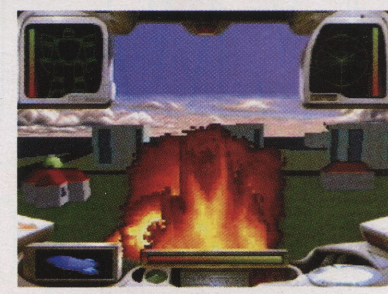
These buildings (above) each consist of 20 polygons. They look very bare at this range because, to keep the frame rate up, the detailing on objects is turned off when you move beyond a certain distance

land combat, which explains a lot of the weapons and enemies in *Iron Soldier*. The tactics and style of city combat appealed to me. I didn't want *Iron Soldier* to be yet another flying game, which is why the characters remain on the ground.'

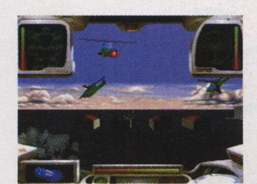
The game is set in the distant future. Rampant industrialisation and urbanisation have continued unchecked for so long that the Earth's surface is now covered with rusting, sprawling cities. With conflicts becoming increasingly common, there is an urgent need for a new type of weapon which is able to negotiate this landscape and can be mass-produced cheaply. So a group of European developers invents the Iron Soldier, which is capable of negotiating rough terrain carrying a variety of powerful weapons. With the world economy in a disastrous state and global war imminent, the new Iron Soldier is wheeled out for its first taste of action.



When you're close to objects, the level of detail increases. An enemy robot (insert)



These houses are dwarfed by your 14-metre frame (above). Someone is firing at you, but their efforts are wasted



Running, on

average, at 30 frames per second, *Iron Soldier* looks stunningly smooth. The robots themselves consist of only around 200 polygons, but this gives them a square, rugged aspect which somehow suits the game perfectly. There's even a spot of texture-mapping on some of the tanks and helicopters, which scale smoothly into and out of the screen.

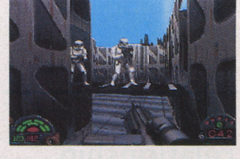
Compared to Atari's other forthcoming Jaguar releases, *Iron Soldier* is technically outstanding. Let's just hope that Eclipse don't neglect to give the game some variety – it would be sad to see it go the same way as that other *Battletech*-inspired game, *Battlecorps* on the Mega CD, whose principal flaw was uninspired gameplay. E



Those helicopters (top) are well animated and also contain some impressive texture-mapped detail. An enemy walks ominously into view (above); attack him before he has time to turn and shoot you

Dark Forces

Dark Forces is proof that *Doom*'s influence has reached even the mighty LucasArts. **Edge** sees a game which retains the Star Wars theme yet shows LucasArts moving into new territory

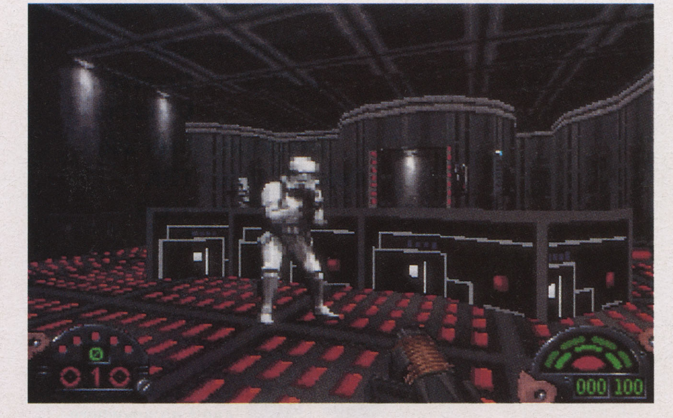


The weapons in this game are big and loud – it's going to be a tough battle between *Dark Forces* and *Doomsday*

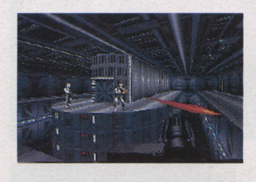
Format:	**PC CD-ROM**
Publisher:	**LucasArts**
Developer:	**In-house**
Release date:	**Late 1994**
Size:	**1 CD**
Origin:	**US**

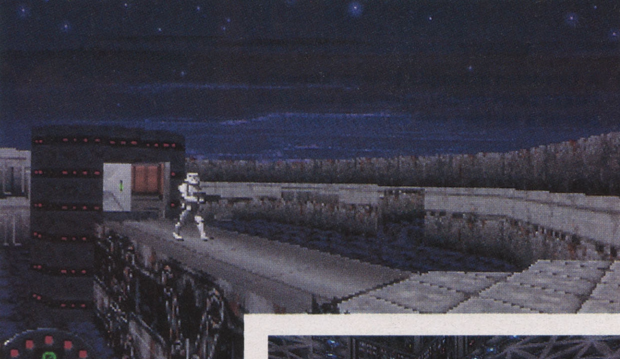
If there's one name synonymous with quality in the PC market, it's LucasArts. Recently, however, the company's reign was briefly interrupted by a unpretentious little game called *Doom*. So, rather than sit back on their not inconsiderable laurels, Lucas Arts have blended their considerable Star Wars experience with the *Doom* concept, and the result is *Dark Forces*.

Dark Forces is a firstperson-perspective shoot 'em up with a plot. Adopting the guise of an elite Rebel agent, your mission is to locate and obtain the top-secret plans for an awesome new Imperial battle station, the Death Star. As you travel through the game's 12 worlds, each with multiple sub-levels and mini-plots, on your way to locate the secret blueprints, you have to tangle with Admiral Mohe and his Darktroops, dodge Stormtrooper laser fire, and avoid docking TIE fighters. Offering the ability to run, jump, duck and look up and down, *Dark Forces* really does seem to take the firstperson shoot 'em up genre one step further.

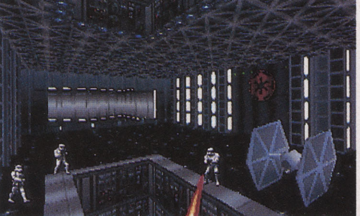


The Star Wars theme is evident throughout the game. The finished version promises more frames of animation for all the characters





Familiar-looking scenes like this show how much *Dark Forces* has been influenced by *Doom*



All the screens produce an amazing sense of scale (above and top left)

Released from the constraints of the traditional LucasArts shoot 'em up, *Dark Forces* (complete with *Doom*-esque graphics engine) already looks slick, with depth-cued texture mapping, Gouraud shading, morphing, variable lighting and digitised sound effects.

And with the next Star Wars trilogy a mere six years away, the demand for Star Wars-related product in the interim is bound to continue. Judging by first impressions, *Dark Forces* could make up for the abysmal *Rebel Assault*.

***Dark Forces* already looks very interesting, with depth-cued texture-mapping, Gouraud shading, morphing and digitised sound effects**

Off-World Interceptor

Format:	**3DO**
Publisher:	**Crystal Dynamics**
Developer:	**In-house**
Release date:	**TBA**
Size:	**1 CD**
Origin:	**US**

Crystal Dynamics' special relationship with the 3DO continues, with a racing game to challenge the best in the field. **Edge** takes the rough with the smooth

It's getting so congested on the videogame highway these days that you can't go anywhere without your path being blocked by racing games like *Wildtrax*, *Virtua Racing*, *IndyCar 500*, *Ridge Racer* and *Daytona USA*. And now Crystal Dynamics add to the traffic flow with their fourth 3DO offering, *Off-World Interceptor*.

Although Crystal Dynamics' previous action games – *Crash 'n Burn* and *Total Eclipse* – showed off the 3DO's impressive texture-mapping abilities, both were found wanting in the gameplay department. So 3DO owners might be forgiven for approaching this particular offering with more than a little trepidation. But those fears could turn out to be unfounded because, in terms of both graphics and gameplay, *Off-World Interceptor* looks exceptional.

You play a Trashman – a sort of bounty hunter – on a mission to rid the universe of fugitives, criminals, terrorists, and anyone else who cares to get in your way as you travel at speed over the game's harsh off-road landscape. On your travels you also encounter rival Trashmen, not to mention Cash Cops, who try their best to make your existence a brutally short one. Your objective is to reach various 'target points', take out bosses, and generally put an end to wrongdoing before someone puts an end to you.



This car practises its acrobatic repertoire (top). An obstacle course is looming ominously (above)



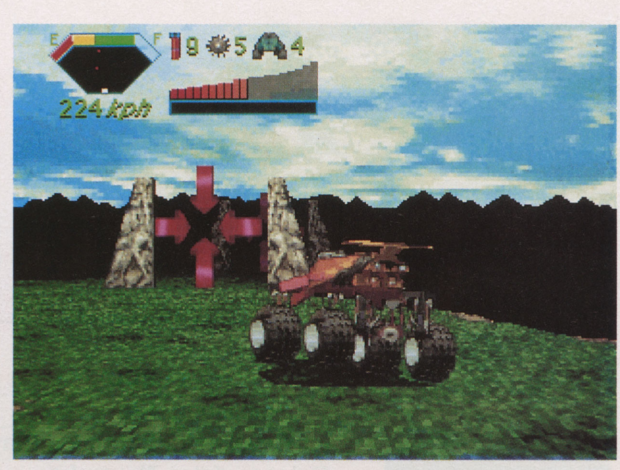
A Trashman attempts to leap through a target point (main). Zooming over this planet's surface can be fun (insert)

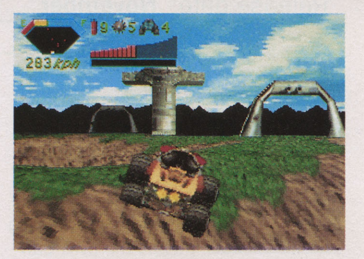
By far the most dangerous aspect of *Off-World Interceptor* isn't the various forms of lowlife you come across, but the undulating alien terrain you have to traverse. These 'courses' span nine different alien planets, with each one more hazardous than the last. Crystal Dynamics have used their in-house-developed DCMS – Dynamic Co-ordination Mapping System – to create realistic 3D hills, valleys, crevices and winding mountain roads, with great success. Many of the texture-mapped landscapes are a joy to watch – graphically, this is probably Crystal Dynamics' best effort yet.

Happily, *Off-World Interceptor* moves as well as it looks, with superb



An enemy Trashman uses these arches as a shield. Race through or around them and take him out with your missiles





This is one of the target points you have to go through (main). Wherever you go, you find bumps (above)

animation and a healthy 3D update throughout. However, the most impressive aspect of the whole game is without doubt the vehicles themselves, which have independent suspension and behave just like real 4WD off-road vehicles, bumping and hopping over the treacherous terrain.

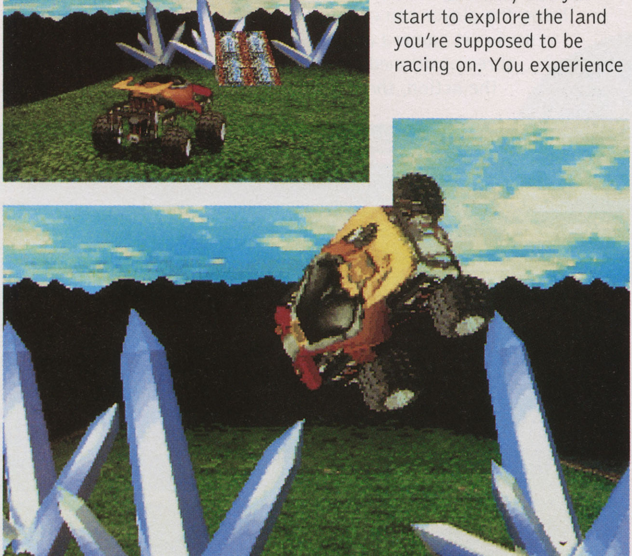
One of *Off-World Interceptor*'s most entertaining features is the cars' antics when they hit a bump and leave the ground. Instead of just flying through the air and crunching into the texture-mapped landscape, these little machines take it upon themselves to perform acrobatic manoeuvres in mid-air before landing in catlike fashion on all four tyres.

This surefootedness inspires confidence in your car's abilities, and you start to explore the land you're supposed to be racing on. You experience a desire to see if your car can make it up that huge mountain, or to test its capacity to survive a drop to the bottom of a canyon. And unlike Crystal Dynamics' other 3DO games, you're not restricted to a set path: you have total freedom to go where you want, when you want.

With *Off-World Interceptor*, Crystal Dynamics are also entering the simultaneous twoplayer field for the first time on 3DO. But instead of adopting the horizontal splitscreen format that has almost become a standard for this type of game, they've sacrificed width for height and chosen a slightly unconventional vertical split. Surprisingly, this works very well: both cars are fixed in the centre of the window, with the landscapes moving around them, so although the play area feels a bit cramped to begin with, it manages to capture all of the action perfectly – the window scrolls up when a vehicle takes off on a ramp, for example. And, even more surprisingly, there's little trade-off in speed either.

Off-Road Interceptor has the potential to become the 3DO equivalent of *Wildtrax* on the SFC. Like *Wildtrax*, it offers a great oneplayer game, while also providing the twoplayer game that *Wildtrax* failed to deliver but that was *Virtua Racing*'s principal virtue.

Off-World Interceptor has the potential to become the 3DO equivalent of _Wildtrax_ on the SFC



Approach the ramp (top) at speed to get over the spikes (above). Check out the car's texture mapping as it flies through the air

FIFA International Soccer





COVERAGE

***FIFA* gives you a lot of scope to determine the set-up of your team and the way each player performs**

Format:	**3DO**
Publisher:	**EA**
Developer:	**Extended Play**
Release date:	**November**
Size:	**1 CD**
Origin:	**US**

After achieving considerable success with *John Madden*, Electronic Arts discovered 'real' football. Now the 3DO is getting a slice of the action. **Edge** kicks off

If there's one thing Electronic Arts are famous for, it's football sims. And 'football' in America means the oval-ball variety. So when the company announced last year that a Canadian programming team, Extended Play, were coding a 'soccer' game for them, many people thought they had made a big mistake. They were wrong. *FIFA Soccer* on the Mega Drive went on to become one of EA's most successful games ever.

According to EA's European Product Marketing Manager, **Neil Thewarapperuma**, the 3DO conversion wasn't meant to happen so soon: 'The guys at Extended Play were just messing about with some concepts on the 3DO and producing some testbeds which we may have used in the future. But their efforts were so promising, we encouraged them to continue work.'

Even at this early stage, it's obvious that *FIFA* is, quite frankly, the most impressive and realistic sports game on any format. One of the reasons for this is the addition of an extra dimension: 'With the original Mega Drive version, we had tried out various viewpoints,' recalls Neil, 'but it was the 3D isometric view that the kids loved the best. You could see everything in detail: the crowd, the players, the action, everything. So with the power of the 3DO we've attempted to add to that experience. *FIFA* on the 3DO is essentially a football game played in a 3D world.'

FIFA also has selectable multiple viewpoints. In the game's present form, the player can choose from seven set camera angles: three positioned close to the action, three giving



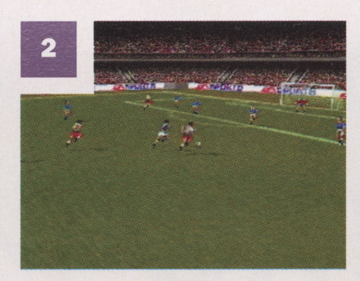
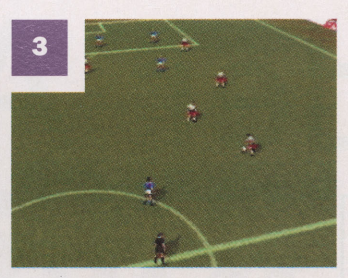
EA are hoping to make the computer players react quickly and intelligently to every situation



Just like in real TV coverage, the camera pans away from the play and shows a different view when you're about to take a throw-in

Even at this early stage, it's obvious that FIFA is, quite frankly, the most impressive and realistic sports game on any format





Viewpoints: for an arcade feel, choose view 1; for the Mega Drive look, go for view 2; view 3 takes you high into the air; view 4 puts you slightly up and behind the action; view 5 is similar to view 2, but further away; and view 6 is for those who like to watch the action from the touchline



you a bird's-eye view of the game, and one, the ball-cam view, which follows the ball around the pitch. All of them are playable and all are spectacular, with the exception of the ball-cam view – the players look very blocky and pixellated in close-up.

As well as these set angles, the game also includes 'event-sensitive' camera views. So if there's a throw-in, a corner or a free-kick, the camera swoops around to the most appropriate position. Neil believes that this adds even more atmosphere to the game: 'The biggest problem we've had so far was getting the 3D engine up and running smoothly. We spent almost a month just getting that part right, but we're very happy with the result.'

In an attempt to make *FIFA* more authentic, EA have sampled the crowd noise from the 1990 World Cup. And the effect is very convincing – you even hear samba drums playing in the background when Brazil are playing. And, just like the Mega Drive original, all the sound effects are completely event-sensitive.




Choose a close view when on the attack (top) and a distant one when defending

But EA haven't been concentrating all their efforts on cosmetic aspects like viewpoints and sound; they've also been working very hard on the sprites and the players' artificial intelligence. 'The sprites are twice the resolution of the Mega Drive's and take up almost 2 megabits,' says Neil. 'We brought in a top artist who'd actually worked on the Disney movie Fern Gulley, and we asked him to redraw all the player animations from scratch.

'The artificial intelligence itself is actually based on the Sega version, but we're attempting to make the gameplay even more realistic. We want 3DO *FIFA* to think smart. Things like headers, volleys and interceptions will all become second nature to computer players and they'll react to situations quicker.'



Choose where you want to place your goal kick – but make sure your man's clear

So far, *FIFA International Soccer* on the 3DO looks extremely impressive. With *Victory Goal* for the Saturn also promising great things, the words 'Sensible' and 'Soccer' might even become obsolete.

Credits

Producer: Bruce McMillan
Producer: Marc Aubanal
Programmer: Penny Lee
Programmer: Peter R Gardner
Programmer: Nossirah Mailliw
Artist: Caroline Anecessi
Artist: Laura Parr
Artist: David Demorest
Artist: John Rix

Under A Killing Moon

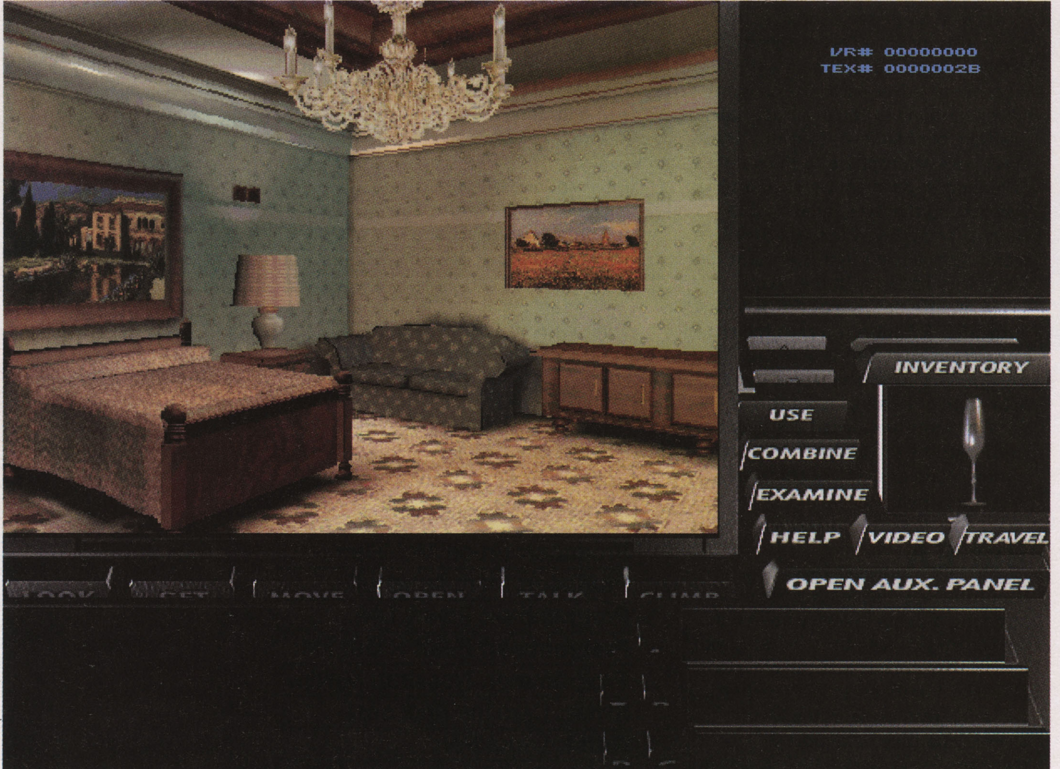
As you progress through the game and receive more clues, new locations are added to the map

Format:	PC
Publisher:	US Gold
Developer:	Access
Release date:	August
Size:	2 CDs
Origin:	US

Many games have claimed the 'interactive movie' mantle but none has deserved it yet. **Edge** previews a game which may actually merit the title

The term 'interactive movie' has become so discredited these days that even ad people are avoiding it like the plague. So when yet another game arrives touting itself as 'the first interactive movie', it's hard to avoid dismissing it out of hand.

However, *Under A Killing Moon* – a game which has taken two years to produce – may actually be worth a look. The difference between this and titles like *7th Guest* is that *UAKM* is a realtime polygon game – just like *Ultima Underworld* (except that it supports SVGA). You get complete freedom of movement within the scalable play window, and can take a closer look at absolutely anything you see in your environment – you don't have to rely on the game to decide whether to provide you with information on a given object. *UAKM*

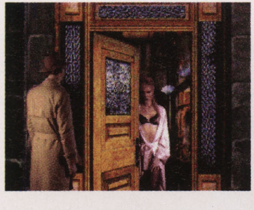


This may look like a static shot, but it's actually a realtime scene which you can move around in. *UAKM*'s interface is very intuitive: the controls are all self-evident, and the cursor changes shape according to which action you select

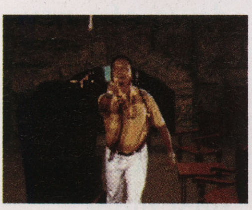




Part of the plot involves freeing a girl from the clutches of this mad knifeman. First you have to distract his attention







Scantily clad blondes are much in evidence (top), but there are plenty of obstacles between you and them (above)





UAKM **allows you total freedom of movement and the ability to inspect any object in your immediate surroundings.**

also offers plenty of FMV (which is why it requires two CDs), but it's the realtime portions that constitute the meat of the game.

Perhaps *UAKM*'s greatest achievement is the way it deals with perspective. Objects change according to your position, just as you'd expect them to in real life. If you walk past a window, your view of the street outside the window shifts as you move. Certificates on the wall scale into view as you walk up to them, until eventually you can make out the writing. To look into a drawer, you have to tilt your head downwards, *Doctor Hauzer* style. Of course, none of this is perfectly smooth – even on a DX2 – but the detail is sumptuous.

The character you play is a Philip Marlowe-type private eye (complete with the gritty drawl only hard-bitten, hard-drinking, hard-smoking PIs of the old school can master), who's a bit of an anachronism in the futuristic society in which he operates. The plot, which could have been dreamed up by Chandler himself, is too complex to go into here, but suffice it to say that a woman is involved, and that a series of decidedly shady characters put in an appearance.

The first priority for a game of this nature is to create the right atmosphere, and *UAKM* accomplishes this very effectively. The game starts in your office, which, with its pathetic jumble of personal belongings and mementoes adorning the walls, desk and floor, provides a believably seedy location for the beginning of the plot.

So what

about the game's movie credentials? The FMV characters, who were all individually filmed against bluescreen and placed into the game where required, are not perfect (jagged edges, slight blockiness), but they're acceptable. The same can't always be said for the acting. The two lead characters are played by competent, semi-famous actors, but the rest of the cast deserve to remain unknown. The poor performances aren't helped by the film sequences being out of sync.

But it's *UAKM*'s realtime aspect that impresses. It's not often that a game can be said to be overambitious and yet reach the heights it has set itself. This may do just that. E



Donkey Kong Country

These are the graphics the SNES has been waiting for. But does *DKC* represent the dawn of a new era for the 16bit system, or just its final fling?

Format:	**SNES**
Publisher:	**Nintendo**
Developer:	**Rare**
Release date:	**21 November**
Size:	**32 Mbits**
Origin:	**UK**



Diddy Kong rides on the back of the rhino while Donkey Kong follows

At 8:30 on the first morning of this year's Chicago CES, a smiling Howard Lincoln, chairman of NOA, stepped up to the Nintendo stand. A hush fell over the assembled audience of bleary-eyed (and probably hungover) early risers as they waited for the unveiling of Nintendo's flagship CES game. Within moments, the silence was interrupted by gasps from awestruck onlookers as they watched what they thought was the world premiere of the first Ultra 64 game. But the real impact was yet to come. When the demonstration was over, Lincoln delivered his final line with perfect timing: 'The game you have been watching is *Donkey Kong Country* for the Super Nintendo.'

In many ways it's easy to see why so many people mistook *Donkey Kong Country* for Ultra 64 software. (In fact, as Howard Lincoln pointed

PowerAnimator **proves its mettle (above). Anyone who thinks that rendered visuals are antiseptic and lacking in character should take a look at these examples. The Silicon Graphics images here are bursting with personality, and show that rendered images can be cute enough for Nintendo**







Donkey Kong and his sidekick brave the jungle (top), while the rhino finds time to pull a face (left). This map (above) charts your progress



Everything in the game is rendered, with the result that *DKC* has arguably the best graphics ever seen in a home videogame

out at the show, the SNES game resulted from an 'unintended discovery' during Rare's experiments with rendered graphics for the Ultra 64.) Everything in the game – the sprites, the backgrounds and the 6,000+ frames of animation – is rendered, with the result that *DKC* has arguably the best graphics ever seen in a home videogame. To achieve such spectacular effects, the developers, Rare, used Alias' *PowerAnimator* software running on Silicon Graphics equipment. The Warwickshire-based team certainly had enough power at their disposal: Rare reckon they have the third largest SGI network in the world, after Boeing and George Lucas' Industrial Light And Magic.

The original *Donkey Kong* was created by Shigeru Miyamoto, who is also overseeing this new game – although *DKC* is still very much Nintendo Of America's baby, under the direction of product development manager Tony Harman. As previously hinted by Miyamoto, *Donkey Kong Country* is a game that many people will see as the follow-up to the four-year-old *Super Mario World*, and, indeed, it seems that Rare have shamelessly plundered the gameplay directory of Nintendo's most famous character. Platform sections are standard Mario-esque fare, while the underwater and mine cart levels are uncomfortably similar to the same scenes in *Super Adventure Island*, also on the SNES.

According to Rare, the 60% complete version was 'a little rougher' than they were happy with, and they would have preferred it if the game hadn't been exhibited at the show, but Nintendo insisted. Rare claim that the finished game will feature far more gameplay innovation and many extra levels.

Whether that is the case or not, *Donkey Kong Country* will undoubtedly offer some solid,

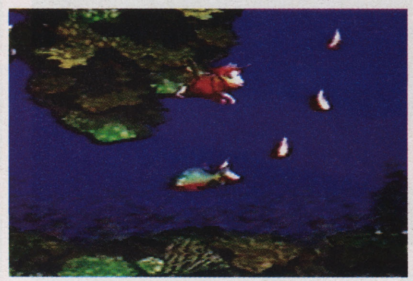
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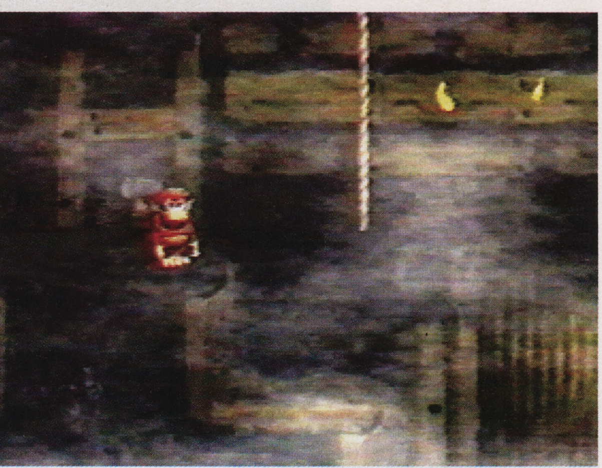




Donkey Kong Country gives weight to the argument that the only thing preventing technological development has been lack of vision



The rhino doubles up as a useful battering ram (top). The watery graphics in this level are convincingly realistic (above)

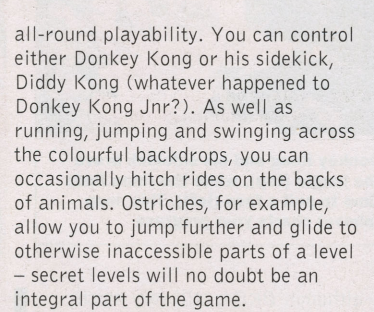


Donkey Kong uses barrels (top) to get across a platformless level. A wonderful mist effect engulfs the confused Diddy Kong (above)

Continued

all-round playability. You can control either Donkey Kong or his sidekick, Diddy Kong (whatever happened to Donkey Kong Jnr?). As well as running, jumping and swinging across the colourful backdrops, you can occasionally hitch rides on the backs of animals. Ostriches, for example, allow you to jump further and glide to otherwise inaccessible parts of a level – secret levels will no doubt be an integral part of the game.

In one part of the game you have to travel via spinning barrels across huge ravines. And in the stunning snow section, where the characters and platforms are almost completely hidden by a flurrying snowstorm, you're forced to virtually feel your way to the end of the level. The parallax snow effects, laid on top of the scrolling backgrounds, have to be seen to be believed.

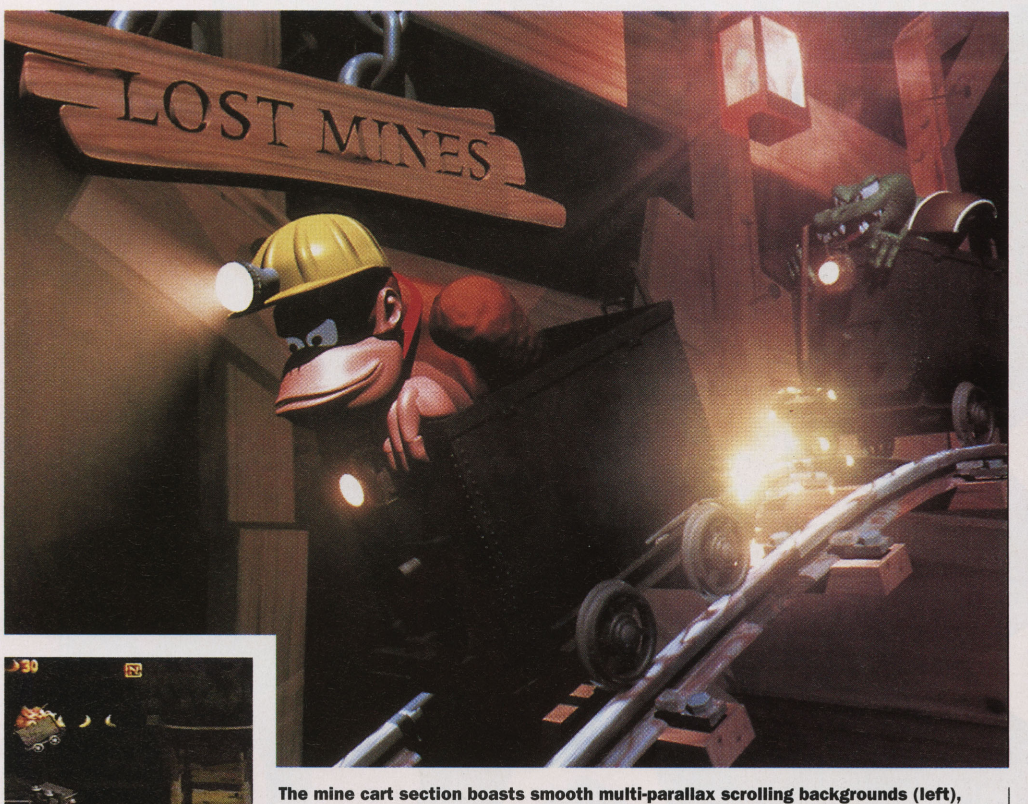


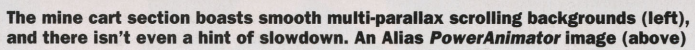


A bumble bee (top) prepares an attack. But Diddy Kong finds a barrel to throw at the winged foe (above)

Obviously, it's the rendered sprites and backdrops in *Donkey Kong Country* that represent the greatest leap for 16bit technology. The *PowerAnimator* package which Rare used to create the game is a highly respected piece of software within the Silicon Graphics fraternity, and Alias' new set of *Powerplay* tools – which allows the creation of pre-rendered animations for realtime display in games – gives programmers much more scope. For example, it's possible to render 24bit backgrounds and sprites and then knock the colours down to 256 – or even 16 – colours per sprite using optimised colour tables. The upshot is that *Donkey Kong Country* uses 256 colours in the most realistic and impressive way ever seen in a 16bit videogame. And, with the help of some clever compression routines, Rare have managed to cram everything onto one high-density 32Mbit cartridge.

Developers are already claiming that games like *Donkey Kong Country* have always been possible on 16bit systems. *DKC* gives weight to the argument that 16bit software has been underprogrammed from the start, and that the only thing preventing technological development has been lack of vision. And the kind of money Nintendo demand from developers for a 32-meg cart...





The mine cart section boasts smooth multi-parallax scrolling backgrounds (left), and there isn't even a hint of slowdown. An Alias *PowerAnimator* image (above)





This snowy level starts off fairly tame, with only a few high-flying buzzards to contend with (above), but the snowstorm soon severely restricts your visibility. This barrel provides protection and propulsion in one handy package (left)





KO

HIGH SCORE NAME

1.910000 AAA

2.710000 BOB

3.51000 TT -

GOAL!

BONUS LEVEL

1UP

2UP

EXIT

EXTRA LIFE

Rules of the game

Games don't need polygons

They don't need millions of colours

And they don't need FMV or pre-rendered graphics

But there's one thing no game can do without

Gameplay

If you could bottle it, you could make a fortune

No-one has the recipe, but Edge knows the ingredients

In the beginning there was *Pong*. People stood agog in front of the original videogame, twiddling their knobs and watching little blobs move up and down. *Pong* had a huge advantage over today's videogames because it had immense novelty value. At the time, the term 'gameplay' had not been invented. People spent hours moving those points of light around a TV screen, unaware that their brains were in the grip of that fickle beast called gameplay.

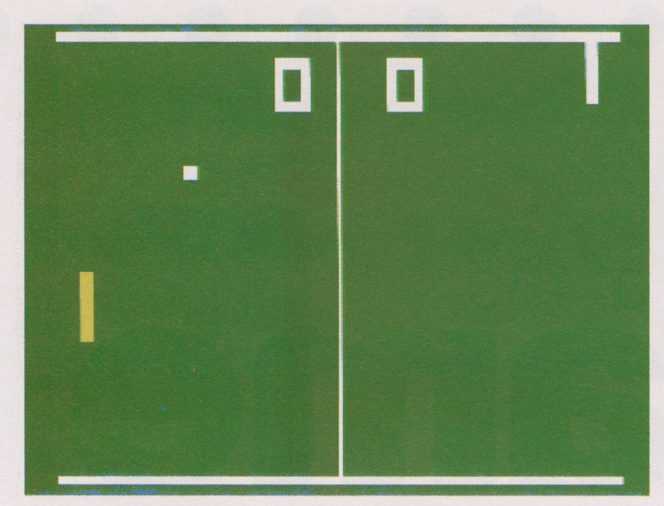
Pong may at first seem too simple to even *need* gameplay, but it provides a nice illustration of some of gameplay's fundamental requirements. Just imagine what the game would have been like if it had been created with 'features' like these: your bat is so small that you can't hit the ball; the ball moves so fast that the phosphor in the screen gives up trying to keep up with it; when you twiddle the knob, there's a lag before your bat moves; when you hit the ball, it bounces off your bat at a random angle.

None of these attributes are 'bugs' as such; rather, they're flaws in the gameplay. At its most basic level, gameplay is that aspect of a game that gives you a sense of achievement and excitement, while at the same time preventing you getting frustrated or bored. But the rules of gameplay are more complex than that.

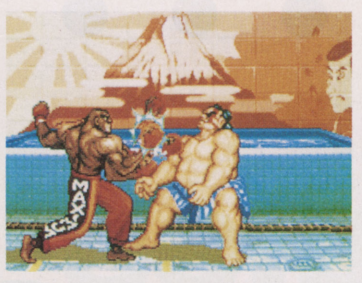
One essential component of a good game is cause and effect. If you move your joystick to the left, your character must also

Continued next page

Gameplay



The game that started it all. *Pong* was invented before the word 'gameplay' even existed, but it wrote the book on the basic principles



What's the point in a game having sophisticated play mechanics if there are no incentives or rewards for exploiting them? *Super SFII* has both

Continued



move to the left. It sounds obvious, but several games have ignored this basic rule, giving you only nominal control over the antics of your character. On the other hand, many games offer almost perfect cause and effect. They achieve this in two ways. Firstly, the character responds quickly and accurately to your instructions. Secondly, good animation allows the character to interact realistically with his environment – bad animation badly damages your relationship with your alter ego on the screen.

But there's more to cause and effect than simply ensuring your character moves in the right way. In a platformer, if you knock a box off a ledge and it lands on a nasty below, it should have some significant impact on said nasty – by destroying it, for example. In a shoot 'em up, if you bomb the hell out of a mud hut and then fly off, the mud hut should still be razed to the ground when you return to the spot a bit later. The less the game environment is affected by your actions, the more detached you become from the game.

Also crucial to gameplay is repeatability. Your action should always result in the same reaction by the computer. In other words, what you expect to happen, should happen. The first time it happens, it may be totally unexpected – such as if you shoot a red blobby thing and it turns into a pile of gold. But the next time you shoot a red blobby thing, you would expect to see the same result. You soon learn that if you choose a certain action, it will always have the same effect, and you feel in control of the game, rather than being controlled by it. One of the reasons that people enjoy playing videogames is that as they get better, they start to feel they're dominating the game; after all the suffering it has inflicted upon them, they're getting their own back. Without repeatability, this isn't possible.

Sometimes this rule can be bent by a certain amount of randomness being built in to the computer's reaction, but the range of reactions must be familiar. There may be only a 1 in 10 chance of red blobby things turning to gold rather than just going pop, but that's still repeatability – you would simply go around shooting as many blobs as you can just to uncover the valuable ones. What shouldn't happen is a totally random outcome when the blob is dispatched. This might seem like a fun idea when designing the game, but it's actually more fun for the developers than the player. By the same token, if you hit somebody with a particular move in a beat 'em up, you expect a certain amount of damage to be done to their energy bar; if the effect on your opponent was completely unpredictable – anything from 0% to 100% – the whole exercise would be completely pointless. A lack of repeatability prevents you from being able to achieve any mastery of the situation.

A game must give you a reason to play it. This is where the concept of incentive and reward comes in. Whether applied to the game as a whole, or to any activity within it, you must always feel that it's worth your while carrying on. There's nothing worse than spending an hour getting your turbocharged squirrel to jump its way up a series of moving platforms, eyeing that valuable-looking treasure chest at the summit, only to find that it contains a potion that just makes your tail turn pink for 30 seconds.

A game should make you confident that higher risks will result in higher rewards. Rewards may consist of points, power-ups, or the completion of a level. An especially nasty opponent should be protecting something of value, even if it's just the fact that you can't get to the end of the wave without defeating him. The more incentive and reward there is in a game, the more risks you'll be willing to take.

Some successful games don't seem to have any obvious incentives and rewards. The *SFII*-style beat 'em up is a prime example: the only incentive to beating your opponent is that it's the whole point of the game. But the incentive and reward principle still works: a special move that requires you to use a complex sequence of buttons has its reward in the effect it has in your opponent. If you can do half as much damage by just pressing the A button, what's the point in learning to use it?

Why is it that we pay £50 for a game, sit playing it for hours with white knuckles and bulging eyes, and then claim we're enjoying ourselves? Why don't we just strap ourselves to the drill bit of an oil rig and shout, 'Take it away, boys!'? Do games have to be frustrating to be any good? To a point, yes. Without an element of frustration, you'll never get a sense of achievement from overcoming the source of the frustration. But a game can be *too* frustrating. If you have to make diagonal jumps through a tricky sequence of 25 moving platforms, having to go back to the beginning of the sequence every time you fall of a platform could be fatally offputting.

Whether a game is too frustrating to be enjoyable depends to some extent on the player. Children seem to be more prepared than adults to go through the same sequence again and again. But it's dangerous for programmers to assume that their target audience is young enough to swallow mind-sanding levels of frustration. For a start, they might overdo it and make the game so frustrating that even the most passive kid won't have the patience for it. Secondly, most games have at least some appeal to pretty much all age ranges, so making games very frustrating is needlessly limiting the potential customer base.

Almost all videogames have one thing in common: they all include levels, waves, stages, or whatever you want to call them. Since the earliest games, players have preferred to have their gaming served up in bite-sized chunks. Levels are useful for marking out certain points in the game. A new level is often the excuse for a complete change of

scenery, and the end of a level is a traditional time for awarding bonuses or revealing passwords. Even games that don't seem to conform to the concept of levels – such as racing games and sports sims – still have definite chunks – individual races or matches – that amount to much the same thing.

Programmers have to consider the question of levels carefully. How long should they be? Should there be loads of short levels, or just a few massive ones? Should the levels be split into 'sub-levels', with their own bonus and boss structures? Levels which are too short may annoy you, while ones which are too long may frustrate you. Continues, if used, also have to be taken into account. If the continues are too close together, the game is too easy to complete. If they're too far apart, you seethe at having to go back and re-kill the same baddies. From a programmer's perspective, there's a compromise to be made between flattering your sense of your own skill at being able to complete a level, and giving you the impetus to further improve your skills when you fail.

Should you be able to return to a given point in a game? Opinions vary. At one extreme are some PC games where you can save whenever you want. On the other are many cartridge games in which you always have to start from the beginning.

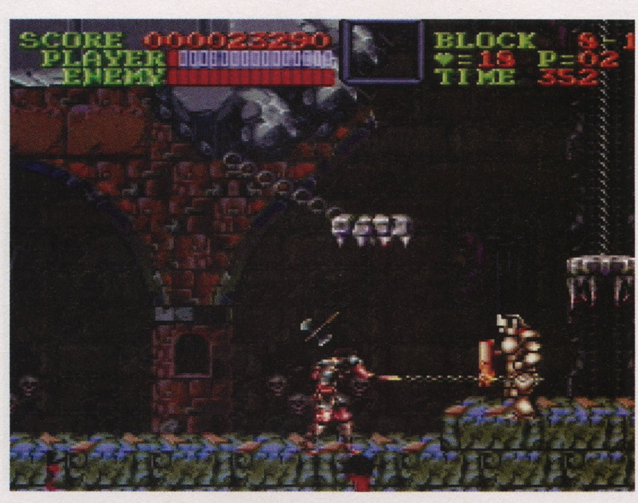
Some games offer a compromise by providing passwords to let you get back to the last completed level. The presence of passwords has a lot to do with game size. Some games, like RPGs, just have to have passwords or battery back-ups, while shorter, simpler games may suffer if they do. The problem with passwords is that they could allow you to just waltz through a section, never to play it again. You'll never notice the nuances of the animation, never find the hidden bonuses, never try more than one way of achieving your aim. You'll also miss that ego buzz that comes from playing early sections after having mastered later ones. You may even end up trying to swan your way through the entire level without ever pausing, just to show the machine how superior you are.

Then there are 'save points', which, unlike passwords/saving, only apply to the current game – if you die you go back to the last save point rather than to the start of the whole level. They don't help you when you come back to the game a week later, but they're better than nothing. Obviously, having a saving system alleviates the frustration of reaching the 20th wave of a game only to be killed, and then having to struggle all the way back there to have another go. With a saving system, the player learns that when he's completed a wave, he really has completed it.

However fancy a game looks, if it doesn't feel good to play, it's a bad game. If you want something that just looks good, watch a film

Most early videogames were abstract. Think about it: what on Earth were you meant to be doing in *Breakout*? What's behind the wall? Why don't you just hire a bulldozer to knock the bloody thing down? Gradually, however, games started to provide environments based on the real world. The classic examples are driving and flying games, which offer activities and sensations similar to those you may experience in real life. Such simulations have to offer something more than you're used to, though, otherwise there wouldn't be enough reason to play them. You probably don't usually strafe villages full of guerrillas when flying to see Aunt Flo in a 747. Likewise, when driving down the M4 there's rarely any opportunity to overtake in the inside lane at 180mph. Everything is possible in videogames.

Although obviously not essential to a game, simulation increases your involvement in it considerably. It allows you to perform actions which are not wholly beyond the realms of possibility, and therefore allows you to imagine yourself in that situation. However, simulation severely restricts the game designer's scope, because things have to start following the laws of physics and be vaguely believable. Deciding how much simulation and how much surrealistic absurdity goes into a game is a largely arbitrary choice – both can work well. But if a player can relate to what is happening – even by accident – it is best to make the simulation as accurate as possible. If you begin to feel it is really you jumping from one rocky outcrop to another, you're going to be frustrated if you're suddenly prevented from jumping any more just because you've reached the end of the background graphics.



How big should games be? How often should passwords be given out to provide the perfect challenge? *Castlevania IV* got it just right

Every gamer has found himself shouting at the screen at some point: 'Eh? That wasn't my fault!', or words to that effect. A game should never make you feel that it has done something unjustified to you. When something goes wrong, you should feel that it is entirely due to your own mistakes.

The classic problem of this type is the 'auto-kill' syndrome, where a baddie shoots a high-velocity bullet directly at you from offscreen and there's simply nothing you can do to avoid it. Actually designing auto-kill out of games is difficult for programmers. One way they can do it is to give you shields, extra energy, or hit points. In this way, unavoidable hits don't ruin the game, because you're able to absorb the loss. The other way is to make life relatively cheap. If you're awarded copious bonus lives, you're much more prepared to accept the odd auto-kill situation – you expect to be unavoidably killed a few times in the game, and you accept it as part of the gameplay. However, thoughtful design can make both of these methods unnecessary.

There are two basic types of videogame: random and patterned. In a random game, things are different each time you play.

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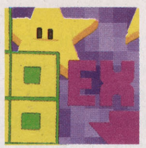


The phenomenon of bosses was already an integral feature of most coin-ops in the mid-'80s, but Irem's *R-Type* defined the state of the art



Twoplayer co-operative games rarely work, but *Golden Axe* plays well. Of course, the horizontally scrolling beat 'em up has regressed since then

Continued



You may know that in wave five you'll be attacked by flying screwdrivers, but you never know how many, when they'll pounce, or exactly what they'll do. Most early videogames were random – particularly as shoot 'em ups were the predominant genre. Random games have two huge advantages: they have no definite end, so you can play them forever, and you can come back to them at any time and still enjoy them because every session is different.

Patterned gameplay means that everything is generally the same. In a patterned shoot 'em up the baddies always appear at exactly the same time – they even try to shoot you at the same point. Most games combine elements of both types of gameplay: they are basically patterned, but because the nasties react to your movement (eg home in on you or aim a shot at you), not every game is identical. Aspects of some games have to be patterned – for example, the basic structure of a standard platform game.

The attraction of a patterned game is that it enables you to learn a certain sequence and then gives you the satisfaction of being able to execute it with increasing finesse. Also, unlike random games, patterned games have a definite ending and give you a specific goal to strive for. If you know that every time you finish a wave you'll only have to confront another, even harder one, ad infinitum, your incentive to play will be severely tried. The problem with definite endings, though, is that once you've reached the end, the game becomes worthless.

Random games have gone out of fashion over the last few years. Just look at classics like *Defender* and *Asteroids* – totally random, but where are they now? At about the same time that they were dominating the arcades, something called *Donkey Kong* came out and people started discovering that they would rather perfect the art of jumping over a rolling barrel that they always knew the gorilla would chuck right at that moment, than have to hone their reactions to the next flying nasty without knowing where and when it would attack. Basically, they discovered that patterned games were easier to master in the long run and were therefore more satisfying to play.

You could probably put an old Spectrum game onto a Mega CD and it would be at least as much fun as the Mega CD stuff

Some games

contain an extra, powerful, incentive: the ability to show off to your mates how good you are. You may be able to simply tell them you've reached wave 493 on *Hypodermic The Hamster 3*, but somehow words are never quite enough.

One solution is the high score table – there's nothing better than seeing your name in lights. The problem with high score tables on consoles is that most are lost when the power is cut. High score tables on PC games are almost always saved, but as PC games are usually only played by one person they're a bit self-congratulatory. The saviour of the high score is new-generation hardware like the 3DO, which is capable of storing things.

The other way to achieve that wonderful feeling of being better than somebody else is the twoplayer game. Twoplayer games usually consist of either direct competition (such as *Street Fighter II* or a racing game) or supposed co-operation (e.g. *Streets Of Rage*, *Golden Axe*, etc). Even the co-operation-type games still provide that all-important ego boost, because you're able to do better than your mate in exactly the same situation. You only have to see the expressions of triumph and exasperation on the faces of two people playing *Micro Machines* to realise that beating a computer can never be as much fun as getting the better of somebody who's supposed to be your friend.

A strange

phenomenon has crept into videogames during the last decade. It's called bosses. Back in about 1980 there wasn't a pair of bosses to rub together. Now they're everywhere and are expected in all types of games, including platformers, beat 'em ups and RPGs.

Do games need bosses? You could say that if games were designed properly in the first place, bosses wouldn't be necessary – a boss may have been included because the rest of the stage was too easy, or because the rest of the game was monotonous and needed something to break it up.

But a programmer may deliberately include bosses because he wants to make the main part of a particular stage relatively easy and satisfying to complete, or he may want to structure the game so that the main part of the stage is actually just an opportunity to collect enough power-ups and bonus lives in order to take on the boss. Of course, it could be that bosses fulfil a fundamental psychological need for gamesplayers – you don't get enough satisfaction from completing a wave unless you've defeated a particularly tough enemy at the end of it.

Bosses may just be a matter of taste, but it's certainly a taste which most gamers seem to have acquired.

An important

part of gameplay design is the ramping of difficulty to make the game easy enough for the novice but still challenging for the expert. This is tricky, especially if a game is aimed at

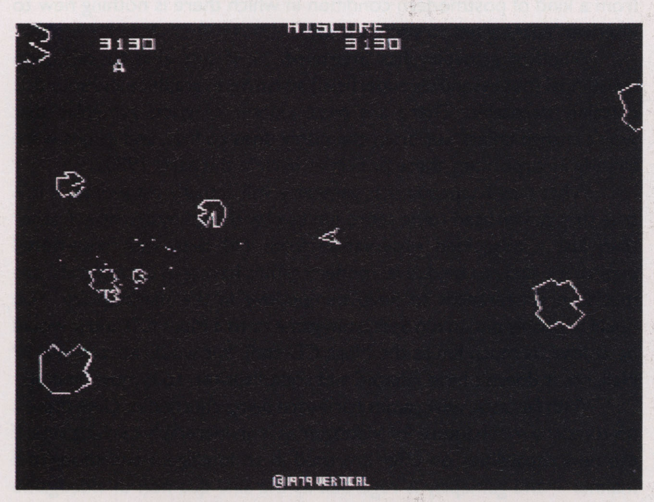
a wide range of players with a spread of abilities. The latest buzzword in the videogames industry is DPA. Rather than being short for 'Don't Play At All' (which would also solve the problem), it stands for Dynamic Play Adjustment.

DPA is nothing new. What it means is that the game monitors your abilities and adjusts itself accordingly. If you're playing like a klutz then it might tone down the nasties a little or scatter a few bonus lives around, whereas if you're obviously highly competent, it makes things really evil to maintain the challenge. Not only have pub quiz machines employed a form of DPA for years, but arcade games such as *Sinistar* were using it back in 1983. Of course, cunning players soon learned how to get around DPA. If things got too hairy, they started playing badly and losing a few of their lives on purpose, which made the machine calm down a bit. The disadvantage of DPA is that it penalises you if you do too well. Why go flat out in a game if you know it's only going to count against you?

DPA is not necessarily a bad thing, but it shouldn't be used to cover up a fundamentally bad design, and it can be avoided by the clever incrementing of difficulty levels. The problem with *Defender* was that after about ten waves, it never got any more difficult. If you were abnormal enough to be able to handle that level of nastiness, you could play it forever. DPA would have fixed the problem, but a progressive increase in difficulty would have been a better solution. But that's not to say that games should just keep on getting harder without respite – inserting easy waves, bonus levels, or just a little breather section into a game prevents it from getting too intense, while still ensuring that it gets progressively more difficult.

There's nothing worse than investing hours of hard play at a game, honing your skills until you consider yourself an expert, and then seeing someone else do better than you by just staying still and repeatedly hitting a button. A surprising number of games succumb to this fault, particularly beat 'em ups, and it can prove difficult to design out of a game. The only solution is extensive pre-release testing, so that developers can find out whether they can indeed bypass all that wonderful gameplay design by simply acting like a monkey with Parkinson's disease.

Some *Asteroids* players discovered a particularly lucrative way of outflanking the game's design. In a practice called 'hunting', they would destroy all the asteroids except for one small fragment and then fly the ship diagonally across the screen, shooting constantly. After a while a saucer would appear, be unable to shoot them as they were going too fast, and would be worth 1,000 points when it was destroyed. Fantastic high scores could then be racked up. Game designers argue that it's not worth doing anything about this kind of 'cheating' – if someone feels a sense of achievement by playing the game without actually doing anything, that's their problem. However, as it detracts from the achievements of other players who have beaten the game fairly and squarely, it could be regarded as a design fault.



The high score provides a powerful lure. Devoted *Asteroids* fans discovered their own, underhand, way of racking up the points



Taito's *Rainbow Islands* has all the ingredients for a superb videogame – incentives, copious rewards and bonuses, and intelligent bosses

If you kill an opponent in a videogame, is there a corpse left, and is it still there if you move on and then come back to it? This apparently trivial factor actually makes a real difference to how well a game plays. The problem is that realistic depictions of violence and death in videogames create inevitable moral considerations. Shocking old ladies with blue rinses and Y-reg Metros is not really a problem in this industry, but allowing a five-year-old to simulate the process of mutilation is probably not a good idea.

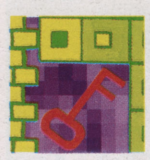
The decision to leave corpses littered around really depends largely on the designer's target audience. A game written for a console is probably better off without them (Nintendo wouldn't allow it anyway), as any console game is likely to be played by kids. Games for desktop computers, though, are more likely to get away with bucketloads of blood 'n' guts, as not only are most users adults, but those adults can have some measure of control over what their kids play on their PCs.

Leaving corpses behind gives you a real sense of achievement – it provides you with a very graphic depiction of the results of your actions. Bad guys that just disappear when killed are still fun to butcher, but you can never get the same feeling of satisfaction as when you return to a room, see the disembowelled remains of the Killer Gerbil you impaled five minutes ago and know that you, champion gerbil killer, were the architect of its demise.

One thing that really differentiates the pioneering games of the early '80s from today's titles are the animation fill-ins. Embellishments like this are fine, as long as they never come between you and the game. However, games with sequences that you can't skip get frustrating after a few plays. The problem is that such additions

Continued next page

Gameplay



don't contribute anything to the gameplay. Pointlessness isn't just the preserve of non-interactive animations, either. Whenever a game makes you do a long-winded, risk-less task, it's in danger of simply annoying you. If, in a platformer, you have to jump up 100 flights of steps to get from one place to another, you're soon going to get fed up. Things like 'game over' animations may seem to have little affect on gameplay, but if you have to wait 30 seconds after you've been killed before you can get back in and try to get your own back, your overall affection for the game will suffer.

What's so special about 3D that is letting it dominate the videogame industry?

The answer is fashion. Some distributors and magazines will only show any interest in a game if it involves 3D. What is dangerous about 3D-fever is that it's often given precedence over pure gameplay. However fancy a game looks, if it doesn't feel good to play, it's a bad game. If you want something that just looks good, why not watch a film? Sadly, games publishers know that 3D games will attract attention, and therefore sales, regardless of the design of their gameplay. At the moment this is resulting in some dire games, which is a shame, because 3D graphics don't have to jeopardise gameplay (as long as there's enough hardware power to implement the effects without any slowdown).

Used properly, 3D can produce superb games, but it must provide the foundation for gameplay, not replace it. The future of videogames almost certainly lies in ever more realistic 3D imagery – a fast 3D game with advanced shading and texture mapping can both heighten realism and provide extra excitement – but it's all too easy to create a game with fantastic 3D effects which is not as much fun to play as *Galaxians*. The games of the future should – and can – be at least as much fun as *Galaxians*, while at the same time offering the player a whole new range of experiences.

Full-motion video is the latest craze to hit videogames.

The concept isn't new, though. In the mid-1980s, arcade fans were treated to the gorgeous-looking *Dragon's Lair*. People eagerly shovelled their money in and waited for the excitement to begin. They watched the demo, marvelled at the slickness of the animation, and prepared themselves for the ride of a lifetime. Then the words 'Game Over' appeared on the screen. The demo they had just witnessed was being touted as the 'game'. They could have got more satisfaction from staying at home watching Tom And Jerry and occasionally whacking the TV set with a broom.

And the *Dragon's Lair* machine had the benefit of almost instant track-switching on its 12-inch video discs. The latest generation of videogame hardware relies on CD drives that run at a snail's pace. Although *Dragon's Lair*'s gameplay is fatally flawed because of its total absence of feedback, machines today can't even manage that much. They stutter and fumble their way around tracks on the CD, always at least one giant leap behind the player. Caching techniques may alleviate this, but FMV can never work as an action-based videogame system. It can be put to good use in introductory and game over sequences, but by definition it cannot be used for the game itself. Doing so breaks all the rules of good gameplay design.

There is one potential saviour of FMV, and that is in the very specific category of games that was started with *Sherlock Holmes: Consulting Detective*. This game actually needed FMV, rather than just used it for the sake of it. There was no problem with interaction, because interaction wasn't relevant – you were meant to be watching a scene purely as an observer. *Voyeur* and *Night Trap* are similar games. By using FMV purely to show the user something which they then react to after the sequence has finished, you avoid the problem of lack of interaction. The question now is whether the game is then giving the player enough interaction to satisfy them. The benefits of FMV's added realism have to be weighed against the fact that the game is more a oneway process of communication from the computer to the user than an interactive experience.

But FMV is trendy, so games will keep appearing that use it pointlessly and to the detriment of what really matters: gameplay. Fortunately, FMV will probably become less prevalent in the future as the 3D rendering capability of games machines begins to approach photorealistic standards.



3D has the potential to open up new dimensions in gameplay – if the elements that made a game like *Galaxians* fun to play aren't forgotten

So where is gameplay heading?

The answer might be nowhere. Think about the enjoyment you got out of playing videogames ten or more years ago (if you're old enough). It's a fair bet that you don't enjoy yourself any more now than you did then. Why? Is it the case that games have actually improved, but our enjoyment hasn't because the novelty value of those early years is missing? Are videogames suffering from a kind of postmodern condition in which there is nothing new to discover, nothing left to stimulate us?

Whether gameplay has improved, or is just able to call upon substantial (but essentially superficial) advances in graphics and sound, is certainly debatable. There are basic axioms of good gameplay that won't change unless our brain chemistry does so first, and games were already incorporating these principles back in the early 1980s.

What may happen is that gameplay will actually get worse. If it is true that games used to be more fun to play than they are now (rather than just a misguided observation from old farts with rose-tinted pupils), it's likely to be due to modern games having to concentrate too much on appearances to keep competitive in the marketplace. You could probably put an old Spectrum game onto a Mega CD and it would be at least as much fun as the Mega CD stuff, but would anyone buy it? Hell, no. It doesn't have rotated and scaled sprites, so it must be crap.

With fantastic new games hardware being churned out like there's no tomorrow, the future for videogames is an incredibly exciting one. If the new capabilities on offer are used in an intelligent and thoughtful manner – and gameplay is regarded as the sine qua non of videogame design – a whole new generation of games may be on the horizon that will redefine what we currently think of as fun. E

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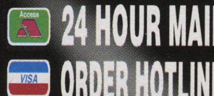
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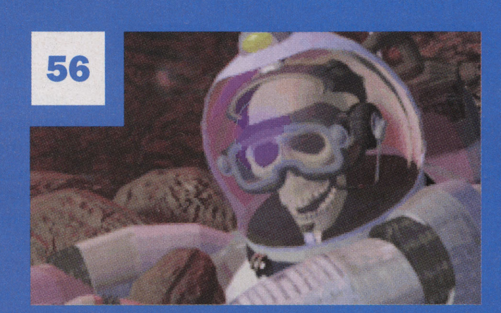
Testscreen

Half of the games in this month's Testscreen have a cosmic theme. The best example is *Outpost*, Sierra's space saga for multimedia PCs, which successfully blends classy rendered visuals with *Sim City*-style gameplay.

LucasArts also release another episode of their long-running series of space shoot 'em ups. *TIE Fighter* allows players to take the Empire's side for a change, but apart from that, the game is noticeably short of anything in the way of innovation.

Super Street Fighter II also lacks any significant novelty beyond the addition of four new fighters and a brace of extra moves, although Capcom's burnishing of their classic beat 'em up will undoubtedly make an impression on diehard *SFII* fans. But how long will *SFII* last when Nintendo's new 64bit fighter, *Killer Instinct*, enters the ring? E

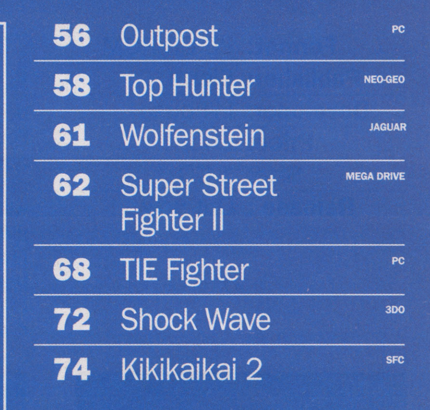
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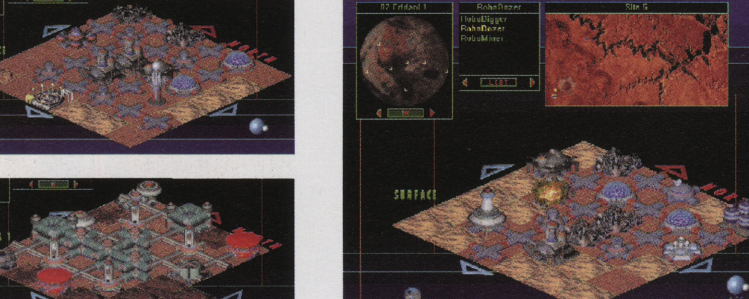
Outpost

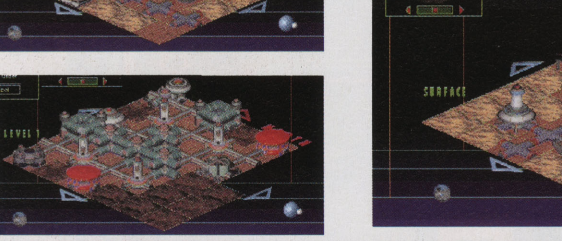
Format:	PC CD-ROM
Publisher:	Sierra
Developer:	In-house
Price:	£45
Size:	1 CD
Release :	Out now

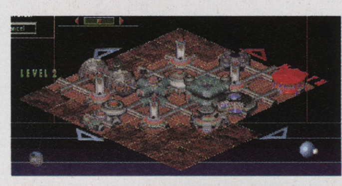
With *Outpost* now coming in at four months behind its planned release date, the scenario of the game should be pretty much common knowledge by now. For those for whom it's still unfamiliar, however, the Earth is about to suffer a cataclysmic collision with a meteorite, which will end all possibility of human life on the planet. As commander-in-chief of mankind's final gesture – a starship that will carry 200 people to a different star system in an attempt to colonise a new planet and rebuild human civilisation – you have to make the crucial decisions that will ensure the ultimate survival of the race.

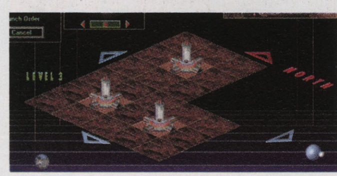
The first, relatively simple, task is to select four star systems for investigation by remote probes. While the craft make their way to their destinations, you have to load your spaceship with the items you deem necessary for survival on your new world. Then comes the moment of truth: you have to select one star system to visit in the hope of finding a viable planet at the end of your journey.

All you've got to base your decision on is the scanty information gleaned from your advanced probes. You have to weigh the data, balance the pros and cons of each system and, basing your decision on a myriad of factors, determine which resources to take with you. If you chose to take a geological







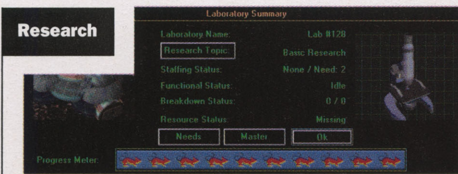


You're not confined to the surface of your new home. Multi-level underground structures offer better protection for your people

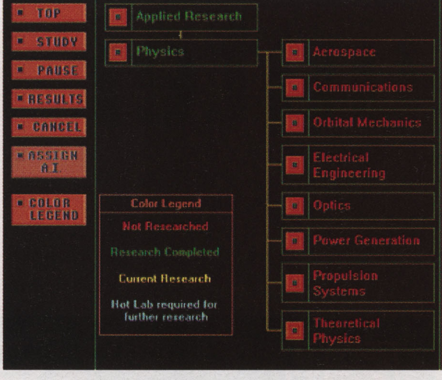


Most of the action takes place in the scrolling area at the base of the screen. The various help windows can be moved around. The game runs fast, too, especially if you've got 8Mb of RAM

Research



Research is a vital element of *Outpost*, and underground labs (right) have to be built as soon as possible. When they're fully operational, a research tree (far right) highlights the various areas you can concentrate on. Success grants new facilities and equipment (above)

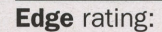


probe, for example, you may be able to overcome the scarcity of certain minerals on your planet. But that may mean not taking a satellite to forewarn you of solar flares. The combinations are extensive, to say the least, and only after several tries will you have worked out an optimum configuration.

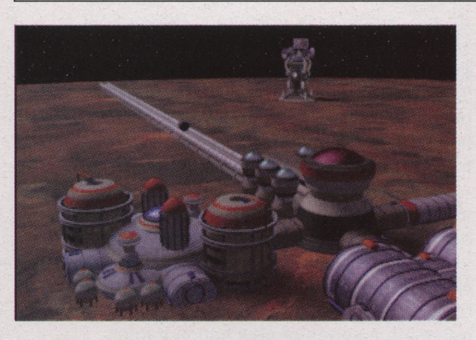
Sometimes it's easy to believe that programmers live on a different planet to the rest of us. A planet where complex ideas appear gloriously straightforward. Where frustration is unheard of. And where having a manual that actually instructs is a luxury. If there is such a planet, the programmers at Sierra have seaside apartments there, because the manual for *Outpost* is woefully inadequate. It's inexcusably lax of Sierra to provide only the barest introduction to the workings and principles of a game as complex as this. Although the lack of guidance is not an insurmountable obstacle, even seasoned players will struggle to find the pattern behind the game's apparent randomness.

That said, though, *Outpost* is an excellent game – and not just in terms of looks. Admittedly, the ten-minute full SVGA intro does grab your attention, as does the rendition of Holst's Planet Suite in the background. The numerous cut scenes not only look lovely but add greatly to the atmosphere. But beneath the gloss there's a highly engrossing strategy game – which is a pleasant surprise when so many games of this ilk prove too labyrinthine to be really enjoyable.

Outpost is not an easy game. It's certainly not instantly accessible. Anyone who plays it is bound to lose their first few games without fully realising why. But you soon find there's a logic to everything, and challenge arises out of frustration. Give it time and thought and it turns out to be the best strategy game since the all-conquering *Civilisation*.



Edge rating: Eight out of ten

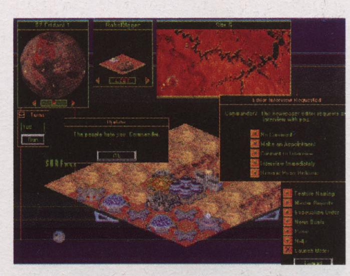






Rendered

The propulsion section of your seedship is jettisoned en route (top left). Life is often harsh (middle left). Other races in the game have to be dealt with (far left). Basic research leads to efficient factories (left). Longterm research is required for your space programme (above)





Your Artificial Intelligence system informs you of new developments and reports on your progress – or, equally possible, the lack of it

Top Hunter

Format:	Neo-Geo
Publisher:	SNK
Developer:	In-house
Price:	£175
Size:	110 Mbits
Release :	Out now
Supplied by :	Console Concepts
Telephone:	0782 712759



This rockfall is the most interesting thing that has ever happened on the Wind Planet, which is otherwise as dull as ditchwater. Dodge the rocks







(From top) Climb inside a robo suit and you can stomp on the enemy; getting round Bigfoot is tough; you can throw things at the baddies to keep them at bay

Let's face it: the price of Neo-Geo software is ridiculous. Where SNK's console is concerned, the vast majority of gamesplayers are in a strictly 'look, don't touch' situation. But that's been a blessing in disguise lately. With a few honourable exceptions, Neo-Geo software hasn't had a memorable year so far.

But SNK are making a two-pronged attempt to rectify this situation. They have already addressed the 'expensive software' issue by unveiling their long-awaited CD system (see News, **Edge** 11). And they are also trying to breathe new life into their existing system by releasing a series of new action games incorporating both new and old ideas. *Top Hunter* is one of the fruits of their efforts

At first glance, *Top Hunter* bears more than a passing resemblance to Capcom's ancient arcade hit, *Bionic Commandos*. But only at first glance. Granted, SNK have borrowed the extendable arms idea from Capcom's game, but that's where the similarities end. Instead,



Avoid these moving spike walls and pull the chain in the centre of the screen to escape

the programmers have gone for an action-packed platformer with *SFII* overtones. That's right: *Top Hunter* is a platform beat 'em up.

The result of this mix of genres is that *Top Hunter* seems a bit confused. One minute it thinks it's a one-on-one beat 'em up, complete with dragon punches, fireballs and hundred-hand slaps; the next it's under the impression that it's a side-on scrolling platform game. This wouldn't be so bad if the game wasn't so

The four planets









You don't have to work your way through *Top Hunter*'s planets in any set order; you can choose whichever one takes your fancy. They are (clockwise, from top left): Wind, Forest, Fire and Ice

linear. The levels just scroll from left to right, with precious little vertical scrolling, no diagonal scrolling and a distinct lack of parallax. The four planets you have to traverse offer little in the way of spice and variety, and even the potentially interesting extendable arm concept is underemployed: you can grab baddies with it and use it to pull chains to get bonus items or points, but apart from that it's little more than a gimmick. The music is a long way from being brilliant, too; in fact, it's downright bland.

However, it's not all bad news for *Top Hunter*. Unusually for a Neo-Geo game, it's quite tough, even with a surfeit of credits and two people playing simultaneously, and there are a few nice touches. You get the chance to get tooled up with a robo suit, for example, and unleashing fireballs at the baddies when you're powered up always provides a thrill.

But these moments are few and far between. *Top Hunter* provides good novelty value for a while but soon becomes tedious. With a bit more thought, it could have been something really special.

Edge rating: **Five** out of **ten**

The **four** planets

These four beautiful worlds have been invaded by ruthless space pirates, and you and your sidekick have been hired to get rid of them. The **Forest Planet** is, predictably, covered with trees, and riddled with secret caverns. You'll find that the **Ice Planet** is treacherously slippery and full of traps. The **Fire Planet** includes lots of nice graphical effects but is very tough to get through. Happily, the inhabitants of the **Wind Planet** don't suffer from a flatulence problem; they do, however, have lots of wind-making gadgets, with which they try to force you backwards. Each planet is split into four sub-sections, but sadly, they don't vary much in style or content.

Avoid this Bison-esque mid-level boss's dangerous fire blasts, then quickly counter with a fireball followed by a dragon punch



The Bison lookalike turns up again in the Wind Planet level, taking to the air in an attempt to avoid our hero's elasticated arm



Bring this flying fortress down by shooting its engines. The robo suit offers some protection, but it doesn't make you invulnerable



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SOFTIMAGE
AHEAD OF THE GAME

Wolfenstein 3D



***Wolfenstein* offers a wide variety of weapons. The better of these, like the Gatling gun (main), are usually hidden behind walls. Thorough searches can be tedious, but they're vital to your success**

Format:	Jaguar
Publisher:	Atari
Developer:	id
Price:	£50
Size:	16 Mbits
Release:	UK

Doom, which is apparently ready and waiting for Jaguar conversion, is a game that, given a quick release, would sell thousands of Jags on its reputation alone. So what do Atari do? They tell id to



The closer you are to your opponent, the more damage each shot inflicts on him

delay *Doom* in favour of its forerunner, *Wolfenstein*. It must make sense to someone.

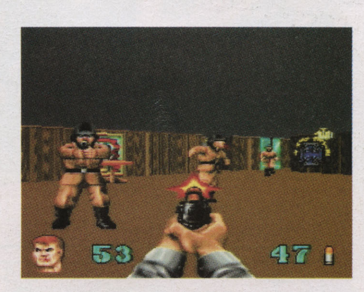
However, that's not to say that *Wolf* isn't a good game. It is. Just like *Doom*, it's simple, addictive and worryingly good fun. The game is based in a Nazi-infested castle in which you're being held captive. In order to escape, you have to fight your way through ten levels full of Nazi soldiers. Your health is represented by a face which gets bloodier the more damage you take. The only other aspect of concern is your gun and the number of bullets remaining.

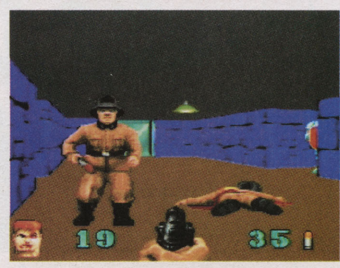
The Jaguar version of *Wolfenstein* is faster (30fps), has smoother animation and sounds better than its SNES predecessor. The main difference between this and the SNES game, however, is the re-inclusion of blood. id were adamant that Nintendo's child-orientated morality was not going to dog the Jag game.

Wolf doesn't tap the Jaguar's power fully, yet the game often feels too fast. Also, the lack of detail on the ceiling and the repetitive, rectangular scenery conspire to disorientate you. The cumbersome Jaguar joypad doesn't make for accurate aiming, either. But there's still no reason why Jaguar owners shouldn't gain enjoyment from this, despite the fact that what originated as a shareware title has now had a £50 pricetag slapped on it.

Wolf is nothing new – and there are better games available for the Jaguar – but it will always be fun. However, with titles like *AVP* and *Doom* promised soon, you'd have to be desperate to dash out and buy this. But, of course, Jaguar owners *are* desperate.

Edge rating: **Seven** out of **ten**



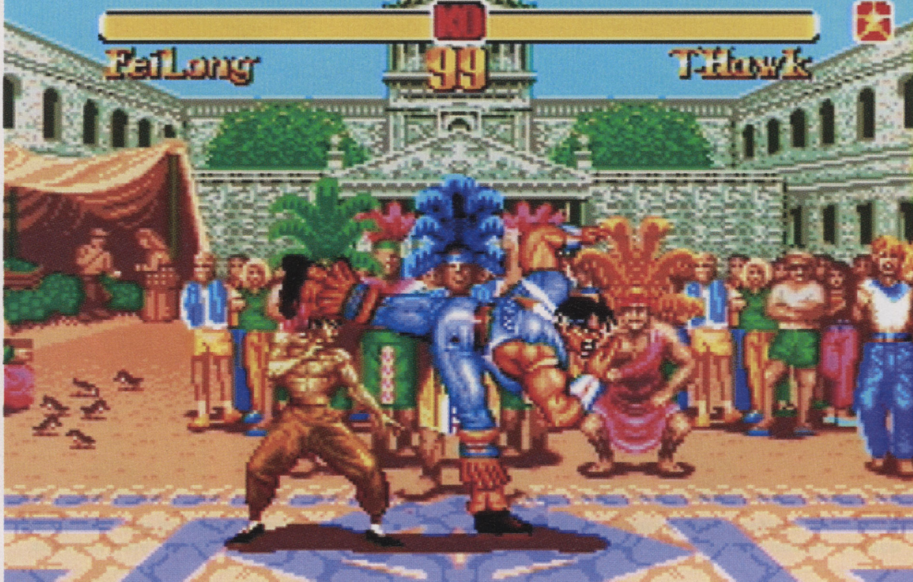




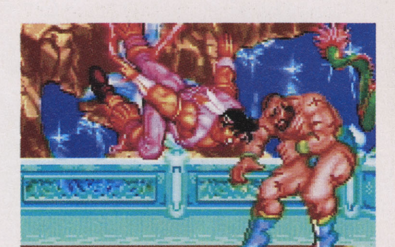
Most of the guards can be killed with a few pistol shots. Among these lightweights are tougher opponents, who are dressed in blue. Guarding the exit is a veritable man-mountain

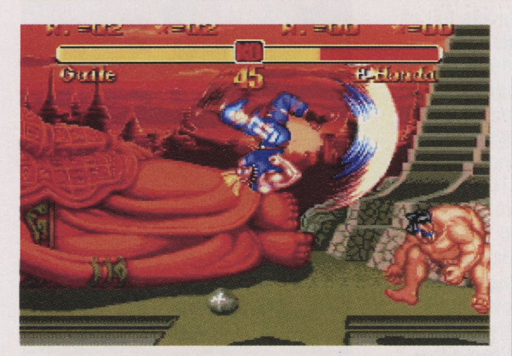
Super Street Fighter II

Format:	Mega Drive
Publisher:	Capcom
Developer:	In-house
Price:	£80
Size:	40 Mbits
Release :	Out now (Jap)
Supplied by:	Console Concepts 0782 712759



The big Mexican, Thunderhawk, tries to hit the slight Fei Long with a roundhouse kick. Luckily, Fei Long's diminutive stature doesn't prove to be a significant handicap







From top: Thunderhawk demonstrates his Condor Dive on Zangief; Guile's Flash Kick shows that he doesn't need any new moves; Fei Long's combos can be devastating, even on someone twice his size

Love it or loathe it, you simply can't ignore it. With their irrepressible *Street Fighter* series, Capcom have almost monopolised the one-on-one beat 'em up genre. Other beat 'em ups may look and sound better than Capcom's efforts, but none of them 'feel' as good to play. And Capcom are well aware of this – worldwide sales of ten million *SFII* units is a pretty good indication that they've done something right.

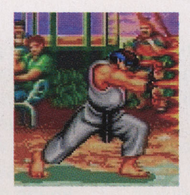
So what do they do after scoring with *SFII*? They don't produce a *Street Fighter III*, that's for sure – when you've got a proven formula like *SFII*, making wholesale changes is far too risky. Instead, they enhance the original game. Enter a procession of 'upgraded' *SFIIs*: *Street Fighter II Champion Edition*, *Street Fighter II Turbo Hyper Fighting*, *Super Street Fighter II* and, of course, *Super Street Fighter II Turbo*.

It would be logical to assume that interest in *Street Fighter II* would have waned by now. But surprisingly, the apparently endless parade of Capcom siblings doesn't seem to have reduced public demand in the slightest. The fact is, people still want to play *SFII* on their consoles, and the cachet involved in owning the latest *Super Street Fighter II* game, rather than the suddenly passé previous version, provides a powerful enough pull to keep the punters coming back for more.

Super Street Fighter II, released for both SNES and Mega Drive, is the latest incarnation. Judging by the way it's selling in some import shops around the country, it could be the most successful version of the game yet, and the biggest cash cow for Capcom since the original console conversion appeared on the SNES.

This Mega Drive version weighs in at a hefty 40 megabits, which is all well and good in theory, but does *Super Street Fighter II* look and sound like a 40 Mbit cartridge? Not quite. The tunes, speech and samples are all laughably weak, some of the backdrops look









Colour supplement **All of the characters in *Super SFII* have now acquired an extended wardrobe, enabling up to eight people to fight in a tournament playing the same character**

distinctly pixelated, and the definition isn't as high as it could have been – even on a Japanese SCART machine. So where did those extra megabits go? For once, they were used to improve what is arguably the most important aspect of any game – playability.

Capcom have bolted on lots of innovative features to make the game even more appealing to *Street Fighter II* fans. Firstly, they've added four completely new characters: Dee Jay, the ever-smiling, maraca-playing Jamaican; Cammy, the freckle-faced, pigtailed English rose, who has joined the tournament to prove to the world that Chun Li isn't the strongest – or prettiest – female fighter around; Thunderhawk, who fights out of Mexico and is the biggest and strongest of the new characters; and Fei Long, from Hong Kong, who's the smallest and weakest fighter in the entire game, but makes up for his unprepossessing physique with excellent martial arts skills and devastating speed.

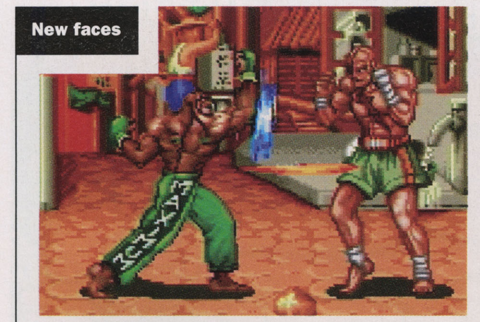
These four characters alone would make *Super Street Fighter II* a worthwhile investment for most self-respecting *Street Fighter* aficionados. But there's more; to make the game even more appealing, some of the original characters get new moves. Ken now

Modes

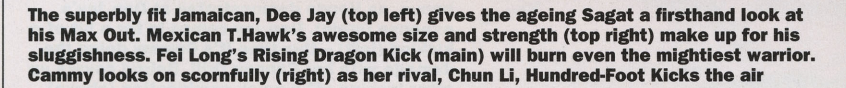
Capcom have included five play options in the Mega Drive package. The first one, Super, is basically the oneplayer arcade game with all the Super additions. The second, Tournament, allows up to eight players to battle it out for the *Street Fighter II* crown. Next, there's the Challenge option, consisting of Time Challenge and Score Challenge. In Time Challenge, you have to kill you opponent as quickly as possible, and then try to beat your best time; in Score Challenge, you have to see how many points you can score in any one round. Both will keep single players amused for some time. In the Group Battle option, two players choose up to four characters each; the object is to beat all your opponent's fighters without losing all yours first. And lastly, there's Versus mode, the traditional twoplayer game which put *Street Fighter II* on the map.

Continued next page

New faces





The superbly fit Jamaican, Dee Jay (top left) gives the ageing Sagat a firsthand look at his Max Out. Mexican T.Hawk's awesome size and strength (top right) make up for his sluggishness. Fei Long's Rising Dragon Kick (main) will burn even the mightiest warrior. Cammy looks on scornfully (right) as her rival, Chun Li, Hundred-Foot Kicks the air

has a Flaming Dragon Punch, which, if timed correctly, can score four direct hits in rapid succession. Not to be outdone, Ryu gains a new fireball which burns and stuns his opponents. Blanka gets a new Beast Roll which opponents find extremely hard to avoid, and the lumbering Russian, Zangief, acquires numerous extra throws and holds.

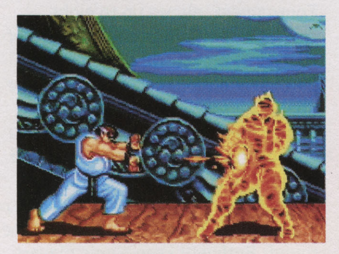
As well as adding extra characters and moves, Capcom have made some of the old moves easier to pull off. To execute Chun Li's fireball, for example, you simply move back, step forward, and then press punch. It's improvements like these – which seem trivial at first but have a real effect on the way the game plays – that make what is arguably the most playable beat 'em up ever even more accessible to grandmasters and virgin street fighters alike.

Capcom have also given the game five different play modes: Super, Tournament, Challenge, Group Battle and Versus, all of which contribute towards an excellent beat 'em up package. Sadly, there's no sign of the 'Turbo' feature, but there is a game speed facility which just about makes up for that.

Basically, this is *Street Fighter II* with huge knobs on. In terms of sound and visuals it can only be described as average, but you can forgive it any weaknesses in those departments because it gains huge strength from its exceptional playability. You wouldn't have thought that a few extra characters and additional moves would be enough to place this on a higher pedestal than its predecessors, but they are. Despite its disappointing aesthetic deficiencies, *Super Street Fighter II* is possibly the best beat 'em up ever.

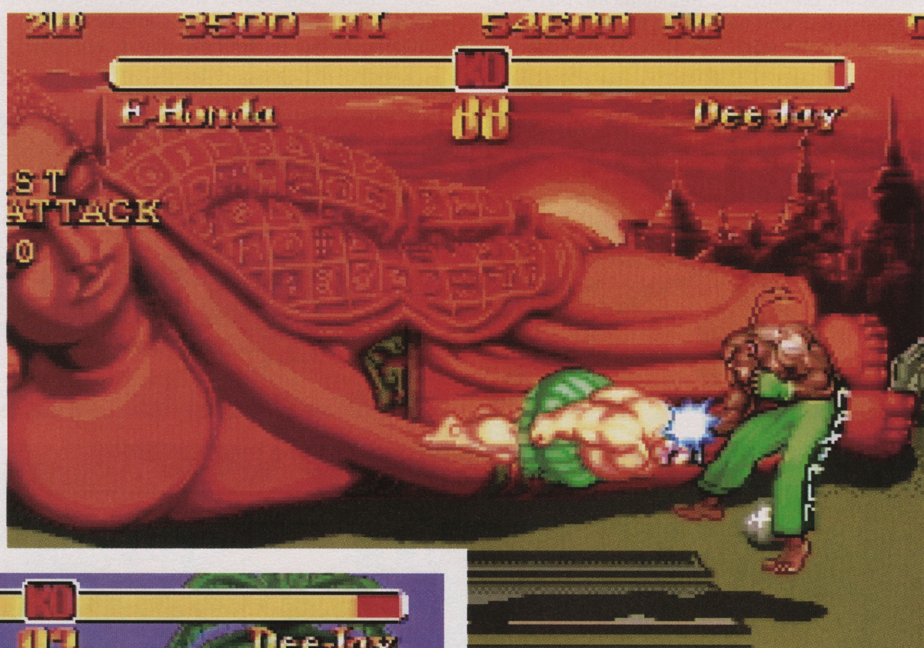
Edge rating: **Eight** out of **ten**

New moves





From top: Ken can now perform a Burning Dragon Punch; Ryu gets an improved fireball; Vega shows off his new Psycho Punch







Strike first and you're awarded a 'First Attack' bonus, as Honda demonstrates at Dee Jay's expense (main). Dee Jay comes in for a bit of a kicking (left) – this time it's Cammy doing the damage with her Cannon Drill. Balrog covers up after loosing off a quick combination (above)

THE SEQUEL



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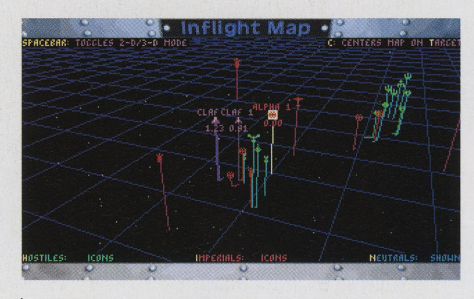
TIE Fighter

Format: PC
Publisher: Virgin
Developer: LucasArts
Price: £45
Size: 5 disks
Release: Out now (UK)

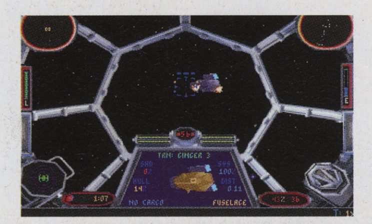
First there was *X-Wing*. Then came its two sequels, *Imperial Pursuit* and *B-Wing*. And now another game has been added to the venerable series of PC shoot 'em ups. But LucasArts maintain that *TIE Fighter* isn't just another sequel, but a completely new game in its own right.

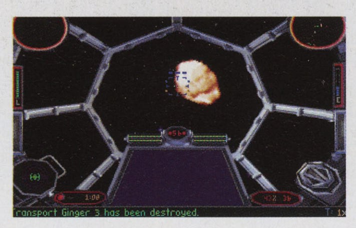
In the unlikely event that you haven't played *X-Wing* or seen its movie progenitor, Star Wars, *X-Wing* and its follow-ups cast you as a starfighter pilot, flying for the Rebel Alliance against the Imperial forces, with your objective being to destroy the newly completed Imperial Death Star. After 36 gruelling missions, the Death Star is destroyed and you're decorated for your services.

TIE Fighter begins where *X-Wing* left off, but this time you play an Imperial pilot, flying a TIE Fighter against the Rebels. At the start of the game, the Emperor summons his fleet to Coruscant City to inform you that the Rebels are in a vulnerable position. With your help, they can finally be defeated.



The mission map allows you to select targets and obtain instructions for the action ahead





The status panel (bottom of screen) shows the current target's vital statistics. Once its shields have been destroyed, its hull begins to absorb all the damage. When the hull reaches zero (bottom)...

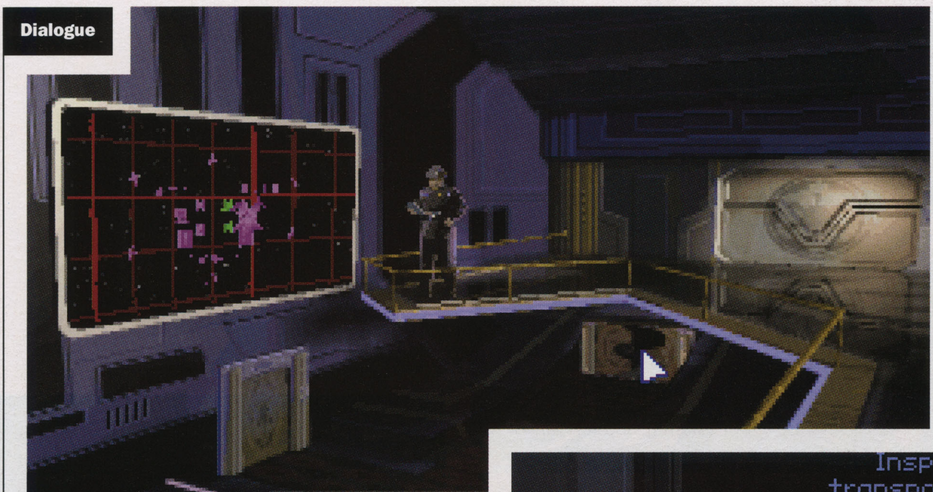






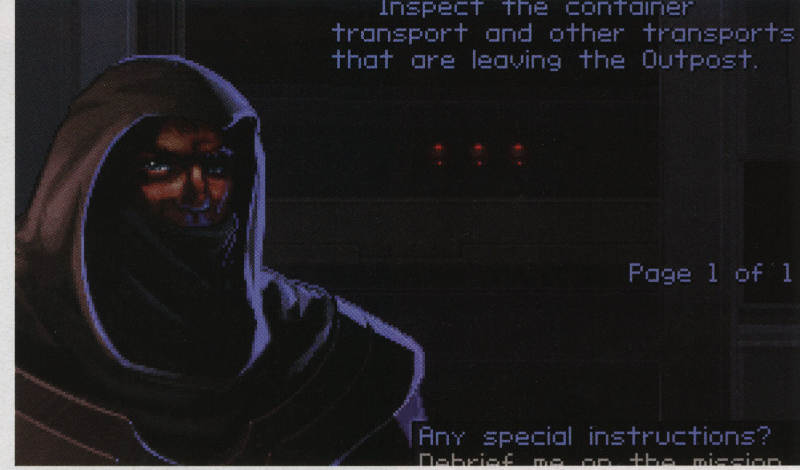
The unimaginatively named Heavy Bomb (above) can cause serious damage, even to a frigate's shields (top). Lasers are enough to put most ships out of action (left)

Dialogue





Talking to the flight officer before each mission gives you an insight into what opposition you'll face (no tactical help is provided until you've failed once)



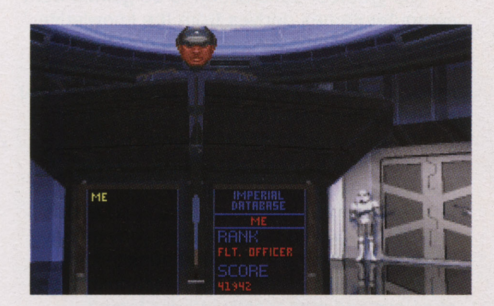
Mission debriefings (top right) allow you to assess your performance. Any special objectives are dealt with by Imperial agents like this creepy-looking fellow (above)

Although *TIE Fighter* employs the same basic graphics engine as *X-Wing*, LucasArts have managed to produce a technically superior title. The Rubik's Cube graphics of *X-Wing* have been jettisoned and now all the ships actually look like ships. There's a lot more of them, too: *TIE Fighter* features 33 previously unseen craft, including six space platforms, three different varieties of mine, a tug and a modular conveyor. The cut scenes are longer, the space station is larger and the sound is better.

However, it's not until you actually start playing the game that you notice the real refinements. The principal improvement is that each mission now has primary, secondary and bonus objectives, so you can tackle as much or as little as you want (only the primary objectives need to be completed to progress to the next mission). The mission map is now an extravagant 3-D grid which highlights any area of the battle that you choose.

At launch, you can decide whether to arm your ship with missiles, rockets, bombs or torpedoes, each of which has a different blast rating and exit velocity. These correspond with the various ships' defensive ratings, as listed in the Tech Room, so you can get a good idea of the weapon needed for each job. If you have to destroy a frigate, for example, the ultra-powerful Heavy Bomb is the perfect choice (although it can prove difficult getting close enough to your target to enable the weapon to do its job effectively).

In the first few missions, you fly the base-model TIE Fighter, which doesn't possess shields. With two hits almost always meaning the end of your ship, a more circumspect approach to achieving your goals is required. However, that's not to say that the missions are now purely tactical exercises; unless you display blatant kamikaze tendencies, the



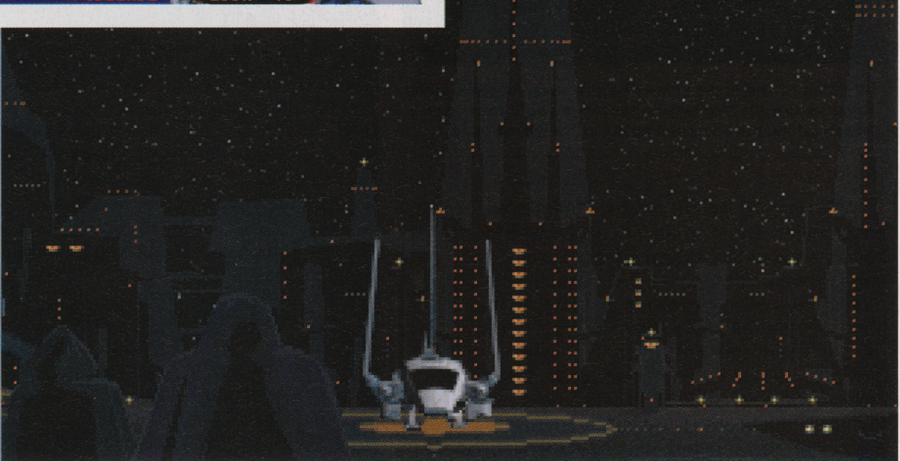


Inside the space station: the registration hall (top) leads you to the base centre (bottom). From here, all areas of the ship can be accessed

Continued next page



TIE Fighter **allows you to match your speed with that of your target. Sluggish Y-Wings are easy to hit from behind**



The cut scenes add depth to the game's plot. Here, Admiral Harkov arrives in his Imperial shuttle at a secret Rebel base, where a rendezvous has been arranged to negotiate his defection to the Alliance

Continued

X-Wings and Y-Wings you're up against are primitive enough to allow you to keep going for some time. In later missions, you get to fly more sophisticated craft, but the Rebel ships gain a similar boost in performance.

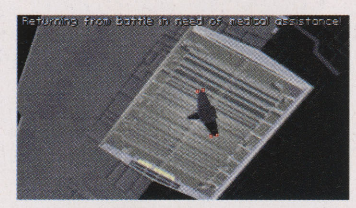
A useful addition is the ability to back up and restore your pilots when things go wrong – LucasArts have finally accepted that not many people can play right through a 50-level game the very first time they try. This facility allows you to keep the medals and other decorations bestowed upon you by the Empire – even if you are vile and evil, you deserve a few perks.

TIE Fighter's major drawback is that all the missions are essentially the same: fly around for a while, shoot a few rebel ships, guard a container pod, return to base. The story does incorporate a few interesting sub-plots, in which the Emperor's agents (looking remarkably like sackcloth salesmen) recruit you for special missions, but the thrills are strictly short-term. Even when you reach the later, harder, missions in each scenario, you don't feel any compulsion to continue; rather, you're tempted to try one of the other scenarios instead, just on the off chance that it will be slightly different.

The greatest satisfaction to be gained from computer games derives from the knowledge that you've triumphed against the odds. This is lacking in *TIE Fighter*. No longer are you the heroic underdog fighting for a noble cause; you know that the Empire, with its huge fleet of ships, will win against the Rebels' paltry forces, and that your own efforts, no matter how spectacular, won't make a jot of difference in the long term. This is a serious deficiency – would the Star Wars movies have been so absorbing if they had depicted a series of easy victories over a technologically obsolete and numerically inferior force?

If you loved *X-Wing* and feel the need for more of the same, *TIE Fighter* is a worthwhile addition to your software collection. But although *X-Wing* was a superb game two years ago which can still hold its wings high today, the technically better *TIE Fighter* is nowhere near as enjoyable in the long term and offers nothing to support LucasArts' claim that it's a completely original game. A sequel too far, perhaps?

Edge rating: **Seven** out of **ten**





If your ship is hit in friendly space, you're rescued and receive medical treatment. (Capture by the Rebels results in a term in a prison camp)

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Shock Wave
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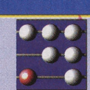
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Shock Wave

Format:	3DO
Publisher:	EA
Developer:	In-house
Price:	£50 (import)
Size:	1 CD
Release:	Out now (US)



***Shock Wave* is a game in which appearance is everything. In an attempt to spice up the atmosphere on later levels, your wingman insists on repeatedly shouting, 'Go get those bastards!' It doesn't work**







The pods (top) hover around some of the more important locations. This enemy fortress (middle) is the final challenge in the Egyptian scenario. Your ship is armed with both missiles (above) as well as lasers

The Earth seems to suffer an inordinate number of disasters in videogames. *Shock Wave* is yet another game to make use of the Earth-in-peril scenario. For some reason, several thousand alien ships have suddenly appeared from beyond the galaxy and started to attack the Blue Planet. So you, the archetypal lone hero, set off in your Stealth Bomber lookalike to send them back to where they came from.

The first thing you notice about *Shock Wave* is that it looks superb. As the blurb on the box trumpets, it has 'over 20 minutes of FMV... superb sound... photorealistic real-world locations [and] stunning 3D terrain.' At least the marketing men got that part right.

Unfortunately, what they neglected to mention was that you would have to be a terminally bored six-year-old to play the game for more than an hour. For a start, all the missions are preprogrammed: the invaders' craft always appear in the same place and perform much the same actions every time you meet them, regardless of what manoeuvres you execute. Which is probably just as well, because your violently oversteering craft effectively rules out any spontaneity on your part – one tap of the joypad to line up an approaching target and you find yourself veering off at a tangent. In a





Intro

The invading alien armada (right) draws inexorably closer to the unsuspecting Earth



This night-time mission over Los Angeles (above and right) offers a new type of challenge, in that you have to line up your shots without seeing your enemies – the cross hair brightens when you're on target, but that's the only help you get. An infrared facility would have been useful here

shoot 'em up, this lack of any real feeling of control over your ship is inexcusable.

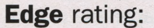
Unless you can destroy the enemy craft (consisting of ground-based 'walkers' as well as spaceships) in a head-on attack first time, you have to backtrack and try again, which soon gets very tiresome. And as well as repetitiveness, you've got to cope with frustration. Each 'run' confines you to an elongated polygonal area: fly outside it and your shields run down rapidly; fly too far back into the mission to mop up previously missed targets and you suffer the same fate. The whole exercise is extremely annoying.

Such severely flawed gameplay is particularly annoying because *Shock Wave* does genuinely look good – although not quite as stunning as *Total Eclipse*, perhaps. The larger buildings placed on the game plane (pyramids, churches, alien control centres, etc) are excellent, with their detail becoming apparent only when it should. The depth-cued texture mapping – each region you have to liberate from alien control has a different texture – is also very impressive. The only criticism of the entire presentation is that the sky is a dull monotone throughout.

When 3DO titles become generally available in the UK, as they soon will, don't be tempted by *Shock Wave*'s extravagant promises – once again, the phrase 'all show and no go' is applied to a 3DO game. The 3DO convinced people long ago that it could produce visually opulent interactive movies; unfortunately, Electronic Arts have devoted too much time to the movie aspect and seem to have forgotten about the need for interactivity. Let's hope they make amends with their other forthcoming 3DO releases...



These tripods (inset) constitute the bulk of the enemy forces, and are backed up by air units (above). The sky's lack of detail is noticeable



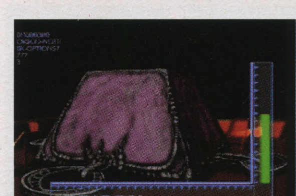
Edge rating: **Five** out of **ten**







A news broadcast reports that a cloud of meteorites is heading towards Earth. While the programme is on air, an explosion rocks the studio. The Earth's defences (that's you) are scrambled, and the game begins



Before each mission, you're treated to a briefing, complete with FMV sequences (top) and 3D renditions of your objectives (middle and above)

Kikikaikai 2

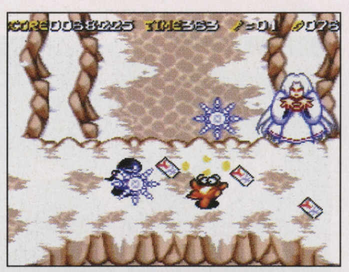
Format:	SFC
Publisher:	Natsume
Developer:	In-house
Price:	£80 (import)
Size:	16 Mbits
Release:	Out now (Jap)
Supplied by:	Console Concepts 0782 712759



The sprites in *Kikikaikai 2* are beautifully drawn. Everything else is similarly detailed – the water (above) ripples around you when you dive in



The candles at the bottom of the screen represent this boss's energy level. As his energy decreases, he becomes more deadly







The lack of parallax is evident here (top). Throwing your partner at a boss is the best way of defeating him (middle and bottom)

Kikikaikai 2 is another one of those games that make a huge impact in Japan but never see the light of day in the UK. Which is a shame, because despite all the standard arguments about cultural differences – the Western preference for instantly gratifying shoot- and beat 'em ups compared to the Japanese predilection for more longterm and strategic gaming experiences – you can't help feeling that the majority of gamers in this country are missing out on a large number of playable titles.

Kikikaikai 2 is traditional Japanese action-adventure fare. You play the eponymous Kikikaikai, who has to rescue his girlfriend from the clutches of the usual evil kidnapper. To reach your objective, you have to battle your way through nine bidirectionally scrolling levels, each one guarded by a boss – the bosses range from an icicle-spouting orange geezer to a surreal Egyptian cat complete with fluffy white kittens that chase after you. Your main method of fighting is to throw 'cards' at your enemies, although you also get a stick for more effective close-range work. At various points in the game, other characters appear, which you can absorb and whose attributes and specialist fighting skills you can then make use of.

The first thing you notice about *Kikikaikai* is the training mode, which takes you on a tour of every aspect of play, starting with movement, taking in the two weapons at your disposal, and progressing to the twoplayer control system. As most of the instructions are in Japanese, it's a very useful feature.



This boss can only be overcome by persistence. Ten minutes of non-stop assault (while dodging his fists, icicles and dropping jaw) will give you access to those doors

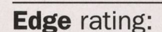
The penultimate level is the most challenging, featuring a set of firework-wielding baddies. However, like all of *Kikikaikai 2*, the have-another-go factor means you'll eventually beat it

Kikikaikai's graphics, instantly recognisable as a product of the Manga school, are colourful and well-drawn, and the sound is humorous and appropriate, if lacking the finesse of the first game. The game also has lots of distinctive little touches. For example, Kiki's health level is represented by the number of items of clothing he is wearing – although decency demands that this metaphor is never taken to its logical conclusion. Another amusing aspect of the game is the fact that you can throw the other character around for extra firepower at crucial moments (often in the wrong direction), a capability which you soon find is vital to your success. If you miss, the other character lies on his back with stars swirling around his head (accompanied by cheeping sounds, of course). This attention to detail is instantly noticeable.

What makes the game really stand out is the second character. At the start of each level you can choose a friend to assist Kiki in his quest. By the end of the game you get a choice of seven, each of which has advantages and drawbacks in terms of speed, strength and fire power. This friend can either be amalgamated with Kiki to provide enhanced abilities or set free to serve as an extra firing platform. The extra character is available in both one- and twoplayer modes on most levels, and gives the gameplay added depth.

However, *Kikikaikai 2*'s fatal flaw is that, unlike its fiendishly tough predecessor, it's over too soon. The gameplay provides a decent challenge, but the simultaneous twoplayer option and unlimited continues conspire to ensure that it doesn't take long too polish each level off – there's definitely not £80's worth of play here. Another criticism is the lack of parallax, which would have given the graphics a bit more oomph.

Overall, though, *Kikikaikai* is an enjoyable experience. If you want good presentation plus bags of humour and playability, this will fit the bill. If you can find it, that is...



Edge rating: **Seven** out of **ten**







Kiki has to avoid being flattened by headstones (top), pierced by archers (middle) and crushed by boulders (bottom). It's a hard life



Kiki's friend lends a hand with some shiruken throwing (left) – some foes are immune to her attacks, though. Another one bites the dust with a rather satisfying explosion (right)

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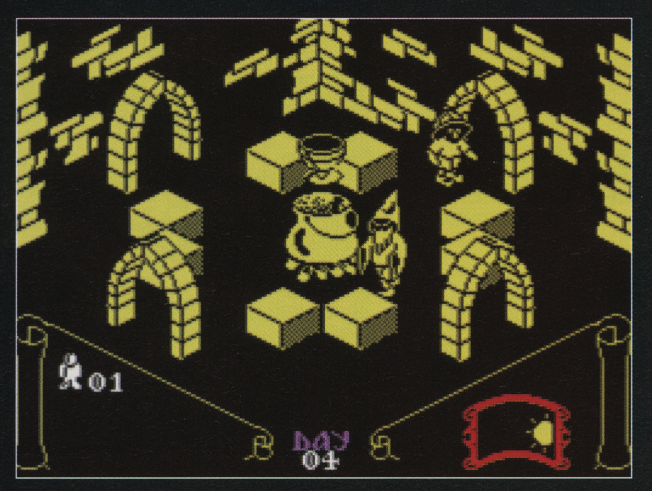
HELP! is a strictly limited edition compilation and is available exclusively from Dixons, but only while stocks last! All the games in this compilation have been donated by the publishers absolutely free of charge. Dixons are donating all profits from the sale of HELP! which will go to Childline, The Prince's Trust and other charities to be announced.

Dixons

where else can you get HELP!?

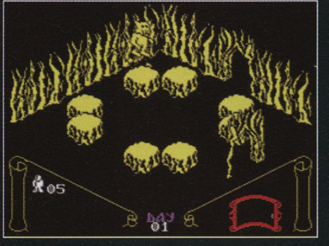
Edge takes you back in time to a legendary era when colours were few, resolution was low, memory was scarce, yet gameplay was absorbing

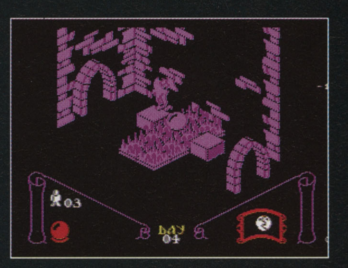
Knightlore



The wizard patrols the central room. Flashing above the pot is the next item he requires for your cure

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If you need to, you can venture further afield into the forest surrounding the castle (above left). Wherever you are, keep a close eye on the time, displayed in the bottom left corner of the screen (above right). Don't attempt any critical actions just before you change into a werewolf

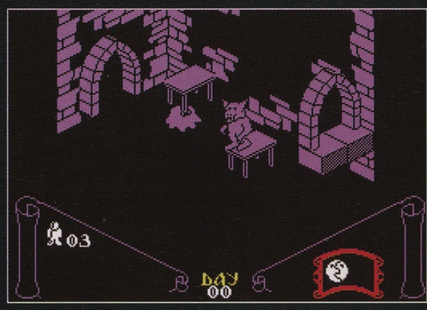
Format:	Spectrum
Publisher:	Ultimate
Developer:	In-house
Players:	1
Price:	£10
Released:	1984

It is probably no exaggeration to say that *Knightlore* represents the greatest single advance in the history of computer games. The first isometric 3D game was not only an unparalleled programming achievement, but it introduced a whole new concept in gameplay. Actually completed before its predecessor, *Sabrewulf*, *Knightlore* was withheld for months because its publishers knew that after its release, consumers would not be easily satisfied.

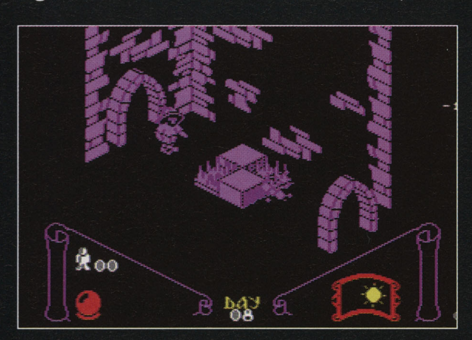
You play Sabre-man (also the hero of Speccy greats like *Atic Attack* and *Sabrewulf*), who has developed a bout of lycanthropy. With 40 days and 40 nights before the disease becomes terminal, his only hope is to collect eight items from around a castle and drop them into a friendly wizard's pot. The wizard will then brew a potion to cure his affliction.

As you wander around the one-colour-plus-black play area, searching for that next elusive ingredient, you can pick up various objects which help or hinder your quest. Pixel-perfect judgement is required, as is speed, because every 12 hours you're transformed into a werewolf, usually just when you could have done without it.

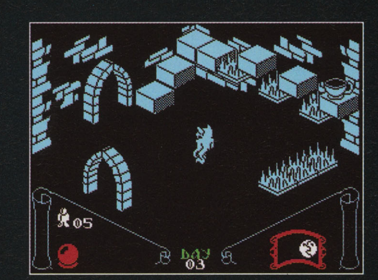
It's a sobering thought today, when games of a similar type require 30Mb of memory, that *Knightlore* was crammed into a minuscule 48K. Even though Ultimate, as Rare, went on to produce well-regarded games like *Solar Jetman* and *Snake, Rattle And Roll* for the NES, *Knightlore* remains their finest hour. It's a great tribute to the game that – ten years later – we still remember it.

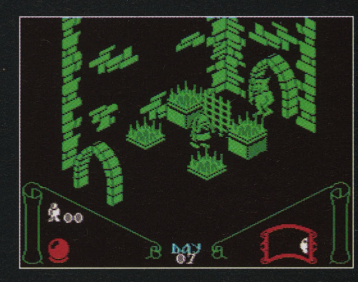


The poltergeist's reactions depend on what form you're in (above). Exiting through that high arch is prohibitively hard, but not (quite) impossible

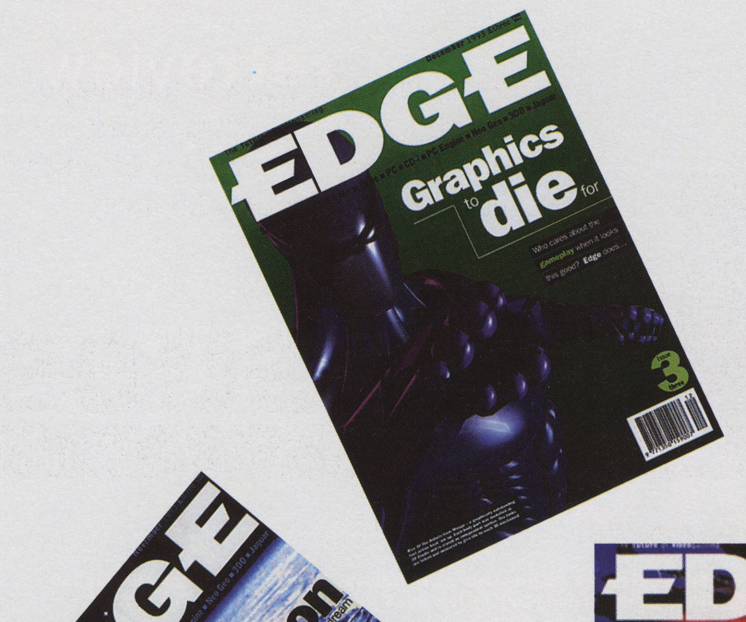


The monochrome colour scheme avoids those notorious Spectrum sprite clashes and doesn't adversely affect the gameplay

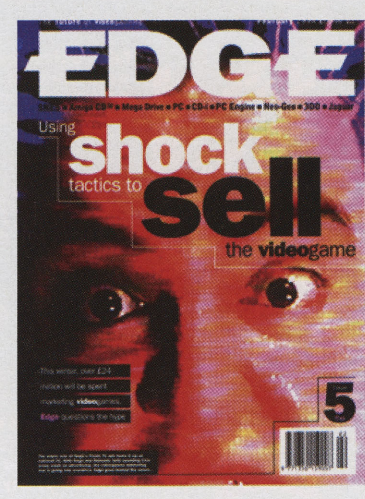


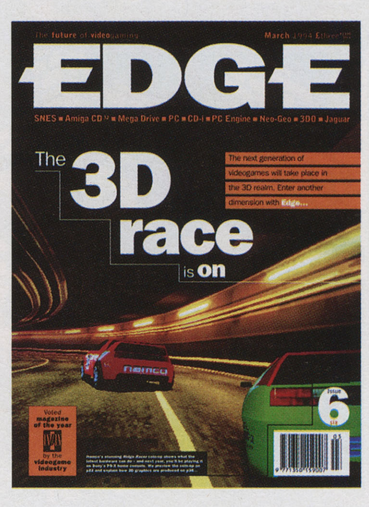


There's no time for hesitation here – those floating blocks disappear as soon as you've jumped onto them (top). Negotiating these gates eats up precious time (above)









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Edge 3
Supergun: the complete home arcade system. Game **genres**: why haven't videogames changed since the 1980s? **Virtual reality:** will it change videogames for good? **Reviews:** *Crash 'n' Burn* (3DO); *Super Empire Strikes Back* (SNES); *Dune* (Mega CD); *Return To Zork* (PC CD-ROM); *Splatterhouse* (Marty); *FIFA Soccer* (MD); *TFX* (PC); *Rastan Saga* (arcade)

Edge 4
PC Engine: the 8bit console that made a hit abroad but is still regarded as a cult in the UK. **Edge** talks to Peter Molyneux's Bullfrog, the company behind *Populous*, *Powermonger* and *Syndicate*, about their latest creations. **Reviews:** *Cybermorph* (Jaguar); *Secret Of Mana* (SNES); *Myst* (Macintosh CD-ROM); *Frontier: Elite II* (PC/Amiga); *Samurai Shodown* (Neo-Geo); *Dracula X* (PCE); *Aladdin* (SNES); *Joe Montana's NFL Football* (Mega CD); *Kether* (CD-i); *IndyCar* (PC)

Edge 5
The hard **sell**: how videogames are marketed. Full **PS-X** tech specs. **Jaguar:** developers predict the future. **Reviews:** *Sam And Max* (PC); *Cannon Fodder* (Amiga); *Rebel Assault* (PC CD-ROM); *Crescent Galaxy* (Jaguar); *Mad Dog McCree* (3DO); *Stellar 7* (3DO); *Liberation* (CD^{32}); *Actraiser 2* (SNES); *SubWar 2050* (PC)

Edge 6
3D graphics: exploring the third dimension. **FMV**: the story of movies on CD. **Archer McLean:** the creator of *Dropzone* talks to **Edge**. **Reviews:** *Total Eclipse* (3DO); *Raiden* (Jaguar); *Bomberman '94* (PCE); *Ganbare Goemon 2* (SNES); *Night Trap* (3DO); *Ground Zero Texas* (MCD); *Mortal Kombat 2* (arcade); *Fatal Fury Special* (Neo-Geo); *Voyeur* (CD-i); *Alone In The Dark 2* (PC)

Edge 7
Edge asks: What's wrong with the **PC**? **LaserActive:** Mega Drive gameplay plus LaserDisc visuals. **Reviews:** *Doom* (PC); *Ridge Racer* (coin-op); *Super Darius 2* (PCE CD); *Super Puyo Puyo* (SNES); *Muscle Bomber* (Marty) *Mega Man X* (SNES); *Scavenger 4* (Marty); *Lunar* (Mega CD); *Sim City 2000* (Mac/PC); *Monster Manor* (3DO)

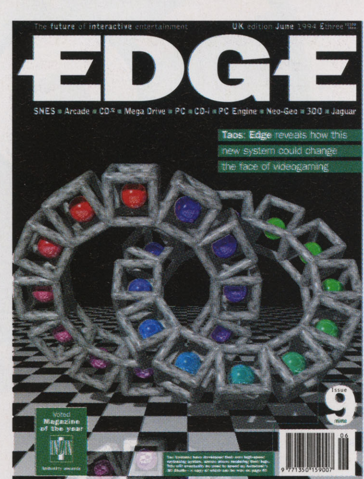
Edge 8
Inside **Namco**: **Edge** asks about *Ridge Racer*, PS-X and the greatest coin-ops ever. The CD^{32}: is it doomed to fail? **Reviews:** *John Madden* (3DO); *Ultimate Tiger* (Marty); *Sub-Terrania* (MD); *Tempest 2000* (Jaguar); *Virtua Racing* (Mega Drive);

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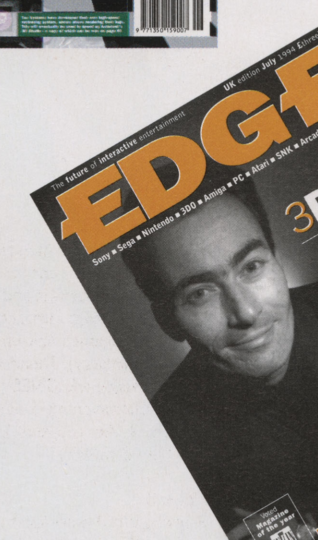
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Spin Masters (Neo-Geo); *Strider* (arcade). Plus **Leading Edge** hardware guide

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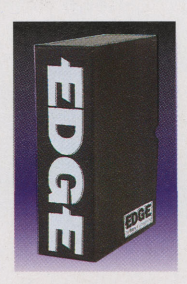
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Edge 10

Has the dream turned sour for **Trip Hawkins**? Out of **sync**: global incompatibility explored. **Reviews:** *SOS* (SNES); *Pacific Strike* (PC); *Super Wing Commander* (3DO); *Heavenly Symphony* (Mega CD); *7th Guest* (CD-i); *Windjammers* (Neo-Geo); *Flying Shark* (Marty)

Edge 11

PS-X: Full tech specs, first pictures and initial release schedule. **CD-i**: Has Philips' machine got what it takes to survive the multimedia future? **Reviews:** *Theme Park* (PC CD-ROM); *Super Sidekicks 2* (Neo-Geo); *Wildtrax* (SFC); *Doctor Hauzer* (3DO); *Out Of This World* (3DO); *Battlecorps* (Mega CD)



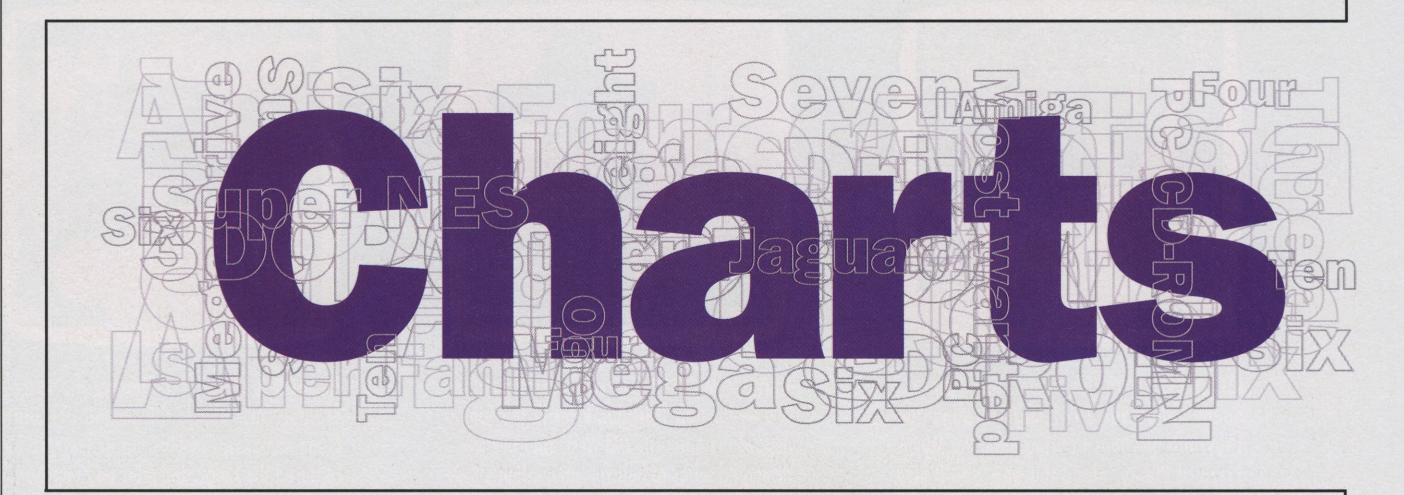
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Rebel Assault PC CD-ROM **Sim City 2000** PC **Gunship 2000** CD^{32} **Daytona** Arcade
Ground Zero Texas Mega CD **FIFA International Soccer** SNES/Mega Drive



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2 Virtua Racing *Sega (£70)*
3 PGA European Tour *Electronic Arts (£40)*
4 Sonic 3 *Sega (£60)*
5 World Cup USA '94 *US Gold (£45)*
6 Dune 2 *Virgin (£50)*
7 Ryan Giggs' World Class Soccer *Flying Edge (£40)*
8 NBA Jam *Arena Entertainment (£50)*
9 Road Rash 2 *EA (£40)*
10 Sensible Soccer Renegade/Sony (£40)

SNES

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3 Rock 'n' Roll Racing *Interplay/Ocean (£50)*
4 Clayfighters *Interplay/Ocean (£45)*
5 NBA Jam *Acclaim (£60)*
6 World Cup USA '94 *US Gold (£50)*
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8 Sim City *Nintendo (£20)*
9 Kevin Keegan's Player Manager *Imagineer (£48)*
10 Ryan Giggs' World Class Soccer *Acclaim (£50)*

PC

1 **Sim City 2000** ***Maxis/Mindscape (£40)***
2 Cannon Fodder *Virgin (£35)*
3 1942 Pacific Air Wars *Microprose (£45)*
4 Premier Manager *Gremlin Graphics (£35)*
5 X-Wing *US Gold (£40)*
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US: all formats

1 **Super Metroid** ***Nintendo (SNES)***
2 NBA Jam *Acclaim (SNES)*
3 NBA Jam *Acclaim (Genesis)*
4 NBA Showdown *Electronic Arts (Genesis)*
5 World Series Baseball *Sega (Genesis)*
6 Mortal Kombat *Acclaim* (Genesis)
7 NHL Hockey '94 *EA* (Genesis)
8 Secret Of Mana *Square Soft (SNES)*
9 3DO Sampler Volume 1 *3DO*
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Amiga CD^{32}

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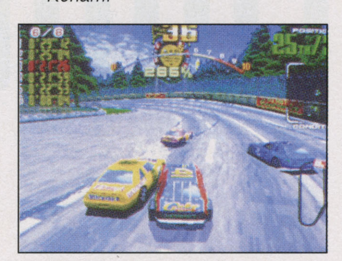
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PC CD-ROM

1 **Rebel Assault** ***US Gold (£46)***
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3 Sam And Max Hit The Road *US Gold (£46)*
4 Mega Race *Mindscape (£40)*
5 Jack Nicklaus' CD Compendium *Accolade (£20)*
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7 Animals *Action 16 (£17)*
8 UFO: Enemy Unknown *Microprose (£45)*
9 Space Shuttle *Action 16 (£17)*
10 Star Trek: 25th Anniversary *Interplay (£50)*

Arcade: dedicated

1 **Daytona USA *Sega***
2 Ridge Racer *Namco*
3 Suzuka 8 Hours II *Namco*
4 Revolution X *Williams*
5 Lethal Enforcers II *Konami*



Sega's Model 2-powered *Daytona* hangs on to the lead in the arcades for yet another month

Arcade: PCBs

1 **Super Street Fighter II Turbo**
Capcom

2 Aliens Vs Predator
Capcom

3 Nebulus Ray
Namco

4 Joe And Mac Return
Data East

5 Ultimate Tennis
Nova

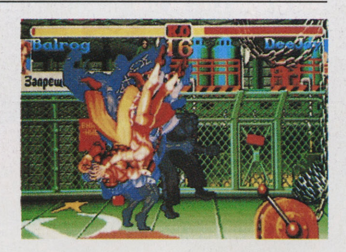
6 World Cup '94
Temco

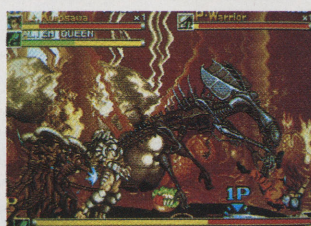
7 Batsugun
Toaplan

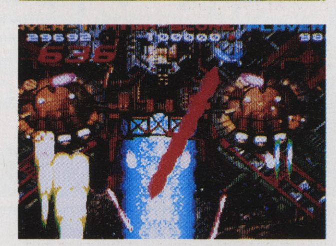
8 Great 1000 Miles Rally
Kaneko

9 Battletoads
Electronic Arts

10 SegaSonic
Sega







***SFII Turbo* (top) continues to fend off all challengers, but *AVP* (middle) could be the game to knock it out. Namco's *Nebulus Ray* hangs on to third place**

Japan: all formats

1 **Wildtrax**
Nintendo (SFC)

2 Derby Stallion 2
Ascii (SFC)

3 J League: Excite Stage '94
Epoch (SFC)

4 Final Fantasy VI
Square Soft (SFC)

5 Sonic The Hedgehog 3
Sega (Mega Drive)

6 Super Space Invaders
Taito (SFC)

7 Super Bomberman 2
Hudson Soft (SFC)

8 Super Street Fighter II
Capcom (SFC)

9 Dragon Ball Z 3
Bandai (Game Boy)

10 Super Puyo Puyo
Banpresto (SFC)







Nintendo's wonderfully playable FX-boosted driving game, *Wildtrax*, races into first place (top), just pipping *Derby Stallion 2* (middle) to the finishing post. Meanwhile, *Excite Stage '94* drops two places to number three

Edge readers' most wanted

Which item of videogames hardware or software – real or vaporous – would you most like to get your hands on? Write to Edge Most Wanted, Edge, Future Publishing, 30 Monmouth Street, Bath, Avon BA1 2BW, and confess your greatest desires

1 **Daytona USA *(Saturn)***



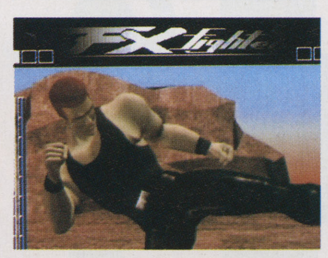
After being temporarily ousted by PlayStation *Labyrinth*, *Daytona* reclaims its 'most desirable' status this month. Whether the Saturn version will be faithful to its arcade parent remains to be seen

2 Clockwork Knight *(Saturn)*



Sega's attractive polygon platformer shows what new technology can do for old genres

3 FX Fighter *(NEC FX)*



NEC's answer to Sega's *Virtua Fighter* certainly packs a punch in the graphics department

4 Starblade *(PlayStation)*



Namco's 3D blast may not be the most interactive shoot 'em up ever, but it looks wonderful

5 Road Rash *(3DO)*



The phenomenally successful Mega Drive game is likely to be an equally big smash on the 3DO

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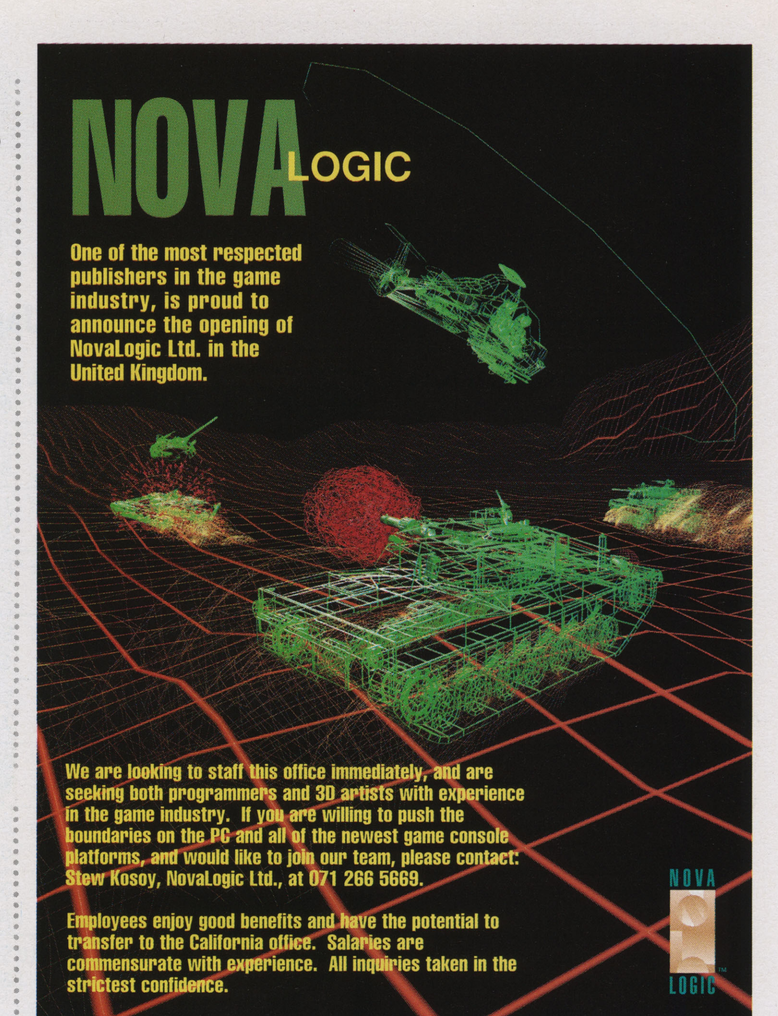
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Rob Dyer

With games like *Crash 'n Burn*, *Total Eclipse* and *The Horde*, Crystal Dynamics have almost single-handedly ensured the 3DO's survival. Rob Dyer, the company's VP of international operations, talks to **Edge** about the 3DO past and the multiformat future

Before he joined Crystal Dynamics, Rob Dyer used to work for Disney, where he helped to set up subsidiaries in Asia, Europe and the Middle East for the company's International Home Video group. He was there three and a half years, until he got a call from one Strauss Zelnick, former CEO of 20th Century Fox, who asked him if he'd like a job in a new company he was involved in setting up. That company was Crystal Dynamics, and Rob accepted the offer. His decision to leave a high-powered position with an entertainment giant like Disney to join a fledgling videogames company (albeit one headed by someone with Zelnick's considerable stature) raised eyebrows, but Rob knew it was the right move: 'It was the opportunity to be in charge of the whole international operation. Plus, Strauss is a visionary, and the opportunity to work for Strauss was very appealing.'

Although he was born in the Midwest, Rob now lives and works in Palo Alto, Crystal Dynamics' Silicon Valley base. His sales background means he has little to do



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with the games development side of the business, and he has never been a gamesplayer – in fact, his great love is sport (he narrowly missed becoming a professional sportsman) and he is more likely to be found playing basketball than indulging in late-night hacking sessions. However, he's beginning to appreciate that there's more to playing games than just sitting goggle eyed in front of the TV.

Edge spoke to Rob in the palatial surroundings of London's Regent Hotel, where the palmy atmosphere of the hotel atrium conjured up images of Rob's California home. (**Edge** would like to thank the staff of the Regent Hotel – particularly PR manager Charlotte Lawson – for their hospitality and good humour.)

Edge There seem to be a lot of Hollywood people involved in the games business in the US. Is there a deliberate move to bring those two fields together?

Rob Dyer On the technical side the company is very games oriented. Most of the people are games people, from EA and Sega, and Accolade and Virgin and you name it. Our focus is on program development (PD) – there are 90 people in the building, and 70 of them are PD. I think it's because of Strauss and me, and the Hollywood connections we have, that we're so closely associated with Hollywood. If we can bring in some of the good aspects of Hollywood... You're seeing the cost of spec development escalating, just like a movie, you're seeing production values for video and sound reaching Hollywood proportions – all that kind of stuff is starting to come into the industry. I'm sure you're going to start seeing a funnel of people from LA up into Silicon Valley. It's already happening.

Edge What do you think of the state of game design at the moment?

Rob I think there are some really innovative games coming out. What people are trying to do now is involve all your senses, to make games appealing to the eyes and the ears. I've seen some great games which are coming out, but this always happens at the beginning of a platform; as the platform matures, the games start to lack that intensity. Towards the end of the platform, licences become the norm. We try to stay away from licences – that's not what we want. A game has to have a compelling story, just like a movie does – you have to have something that's going to make the player play through it. Too many times people rely on the character to draw you into the game.

Edge As a former Disney man, can you see more scope for animators producing drawn animation for games, rather than 3D rendering and FMV?

Rob We have animators from Disney working for us. The reason animators have been so effective is because you can draw backgrounds and characters that become part of the game. I think that's what's important. The reason FMV has not been important is that you haven't been able to make it part of the game. I think you're going to see a lot more FMV, used better, and rather than just being 'eye candy', it will be integral to the game. We're trying to do that more, and make the video affect the gameplay. That's the magic that Hollywood can bring to videogames – if they can get the FMV involved in the gameplay. We tried to do it in *The Horde*, where it worked relatively well, and we're trying to do it in our upcoming games too.

Edge How did Crystal Dynamics lure someone as influential as Strauss Zelnick away from Hollywood?

Rob Strauss was looking for what the next great industry was going to be. The movie business is an 80-year-old industry; it's mature. So you're not going see any huge growth. And Strauss was shaving one morning and he said to his wife, 'It's going to be videogames.' And it just happened that the same night he was going to the Academy Awards and he received a call from someone who said, 'We're looking for a CEO for a company that does videogames. Do you know anybody?'

Edge And he said, 'You're talking to him'?

Rob That's exactly right. He went and met Judy Lang and Madeline Canepa, who were the founders of the company, from Sega, and Strauss really liked what he saw. I think what really turned him on was that he saw a company that didn't want to go backwards in technology, was very cutting edge and saw themselves being able to bring in Hollywood influences that would appeal to gamers and enhance gameplay. He saw how big it could get and what would happen if it was done properly.

Continued next page



Photographs: **Jude Edgington**

'I think there are some really innovative games coming out. What people are trying to do now is involve all your senses, to make games appealing to the eyes and the ears'

interview



'Crash 'n Burn is a good game, but it's nowhere near what it could have been. People look at it now and say, it's so primitive, but you've got to understand that we were working without an operating system. We were guessing'

Edge How did the company evolve from the New Technologies Group?

Rob The New Technologies Group was Dave Morse, who was one of the original inventors of 3DO. When he was talking to the venture capitalists, they gave him the opportunity to set up one software company, because he understood that, sure, you can make the hardware, but where the real money's made is in software. And so they went out and got Judy and Madeline and started up Crystal Dynamics. That was going to be the software company that would help to support the new technology.

Edge The relationships surrounding the 3DO seem to be very complex...

Rob It's very incestuous. There's a lot of tie-over, between EA, 3DO, etc.

Edge Why are all these visionary people clustering around 3DO?

Rob I think because it was new and offered an alternative to the Big Two, Sega and Nintendo. When something new comes out, there's a chance for a lot of risk and a lot of reward. I think one of the things Crystal Dynamics has to beat is that stigma that's always been attached to us that we're a strictly 3DO company. The initial software has been 3DO, because we saw a chance to make a name by supporting a new platform. However, we will support Sony, and of course Sega, and we will support Nintendo. But it will always be at the 32bit level. Everything was 3DO in the beginning because that was the only 32bit technology around at the time. We have to have PC CD as well, but that's not our strength. It's too hard to throw all your eggs in one basket right now. Sure, it's one thing to take risks, but it's another thing to be suicidal. I saw Sega yesterday and we're going to support 32X and Saturn.

Edge Have you met with any resistance from hardware manufacturers after having been so closely associated with 3DO?

Rob No, I think they've been impressed with the quality of the games, and I think they understand that our goal is to support them and produce good software. I think the hardware manufacturers are smart enough to know that nobody can just pick one system and go with it. Nintendo used to put a gun to your head and say, 'You will be ours or nobody's.' It doesn't work that way any more, especially with CD. The entry cost is much lower now. It makes life much simpler.

Edge How much back scratching was involved with the launch of The 3DO Company?

Rob Our first title, *Crash 'n Burn*, was bundled with the machine. Panasonic said that without Crystal Dynamics, 3DO probably wouldn't have come out, because there was no other software to support it. *Crash 'n Burn* is a good game, but it's nowhere near what it could have been. We had it developed before the operating system was completed. The guys who worked on it did it in eight months to get it out. People look at it now and say it's so primitive; sure, it was. But you've got to understand that we were working without an operating system to do it on. We were guessing. So, back scratching? Oh, yeah. Since then, we have maintained a good relationship with 3DO. The success in Japan has done wonders for us. It's been very frustrating in the United States, though. I think if it can launch and do as well as in the UK as it has in Japan, then we'll have a successful platform.







'Nintendo used to put a gun to your head and say, "You will be ours or nobody's." It doesn't work that way any more'

Edge How disappointed are you with 3DO, commercially and technically?

Rob Of course we're disappointed with what's happened in the US, I'd be lying to say otherwise. You're looking at, what? 30,000 machines? In the US market?

Edge That wouldn't be too bad a figure in the UK...

Rob Hey, if that was the UK I'd give it a standing ovation! Japan has been heartening – what is it, 150,000 units? The projection is half a million units. I think that's realistic. In the UK? The way things look now, it's going to be a good launch. Are we frustrated it's not going Europe-wide? Absolutely. I think that's a loss because you give the other platforms an opportunity to get into a market that you're not in. If I were 3DO I'd say, 'that's a loss!' Germany and France are big gaming markets. CD-i is selling there.

Edge With people being so spec hungry, do you think that 3DO has come too late?

Rob In this part of the world, yes. And Nintendo keep saying they've got something coming out, and Nintendo are king in the US, so people are kinda waiting to see what's going to happen. The same thing is happening with Sega. Sega and Nintendo are known quantities. Things went wrong at the launch, and Trip Hawkins as much as said so in **Edge** [issue 10]. We had a price that was a problem, we had distribution that was a problem, we had a marketing problem. Had we been able to have the price right and distribution right, the conversation would have been a lot different. It's easy to say in June that they made mistakes back in September. I think what they're trying to do, as they did in Japan, is try and correct those mistakes and move forward. EDGE

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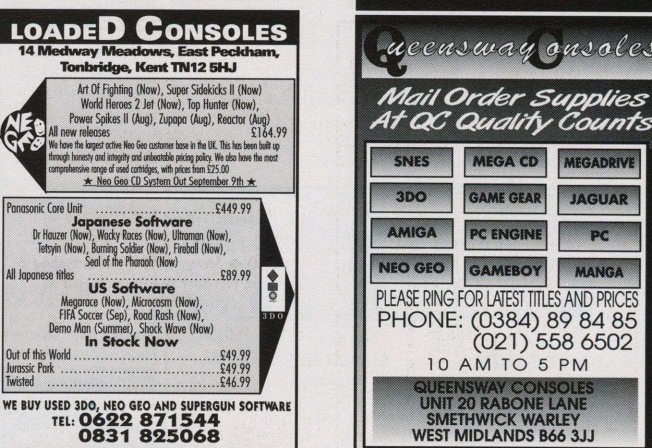
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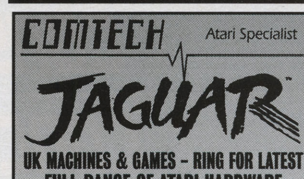
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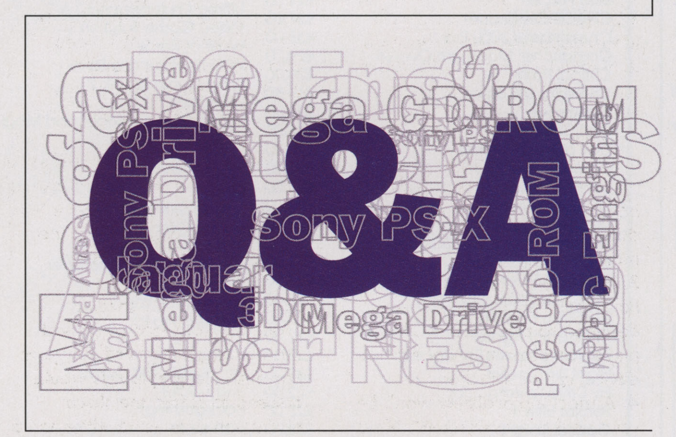
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questiontime

Send your **questions** to Q&A, **Edge**, 30 Monmouth Street, Bath, Avon BA1 2BW



Q In your article, 'Sony PS-X gets first screening', in **Edge** 9, you mention that importers will be 'taking their positions'. Will an imported PS-X be any better than a UK version? What exactly is the difference between a UK PS-X and a Japanese one: are the games in Japanese? Is the machine programmed to show Japanese on its title screen?

Nicholas Witcomb, Fleet

A Imported machines run at 60Hz instead of 50Hz, avoiding the usual modulation to sync with our 50Hz PAL TV standard. This gives a fullscreen, fullspeed picture, something that UK versions of the SNES and Mega Drive can never deliver. This advantage alone has kept the import market fairly buoyant in the UK – a sizeable userbase of imported consoles exists for this reason alone. Sony claim that PlayStation games will be encrypted differently in the three main sectors – Japan, the US and Europe – so software from one sector will be unlikely to run on a machine from another. Of course, this is unlikely to deter those who don't mind the odd bit of Japanese text in their games, and the demand for the imported PlayStation this Christmas will no doubt be huge.

Q What sort of TV will be most suitable for imported versions of the Saturn and PlayStation? What connection gives the best picture? Will importers be able to offer SCART versions of these systems, as with imported Super Famicoms and Mega Drives?

Nick Ford, Chiswick

A Unconverted, an imported Saturn or PlayStation will probably only work on an NTSC-compatible TV (some TVs allow a composite NTSC signal through a SCART socket, while even higher-spec TVs will handle NTSC through composite and S-Video connection). If the new Japanese systems have an RGB-out on the back of the machine (unlikely), then a custom SCART lead is all that will be needed for most modern TVs. Remember, though, that imported 3DO systems still have problems running on non-NTSC-compatible TVs without the aid of a special S-Video/RGB converter box.

The best way of safeguarding compatibility with all future imported hardware is to get a TV that handles NTSC through both S-Video and Composite connections. S-Video is fast becoming the most popular TV connection standard in the Far East and the US (and also offers the best quality after RGB). This subject was also covered in Q&A, **Edge** 7.



If you're planning to get an imported Saturn or PlayStation, what television will be most suitable? (See letter from Nick Ford)

Q After months of saving, I now want to buy one of the large Hantarex monitors featured in **Edge** 3.
1. Can the Hantarex monitor stop the horrible borders from appearing on my UK Super NES (even by adjusting the vertical hold) or are we UK SNES owners destined for a lifetime of squashed graphics?
2. Would I be able to have a SCART lead going to the monitor and an audio lead to my hi-fi speakers at the same time?
3. Which RPG is the best: Capcom's *Breath Of Fire* or Square's *Final Fantasy VI*, and are either of these better than the superb *Secret Of Mana*?
4. When will Capcom release *Super SFII* officially in the UK?

Paul Connor, Manchester

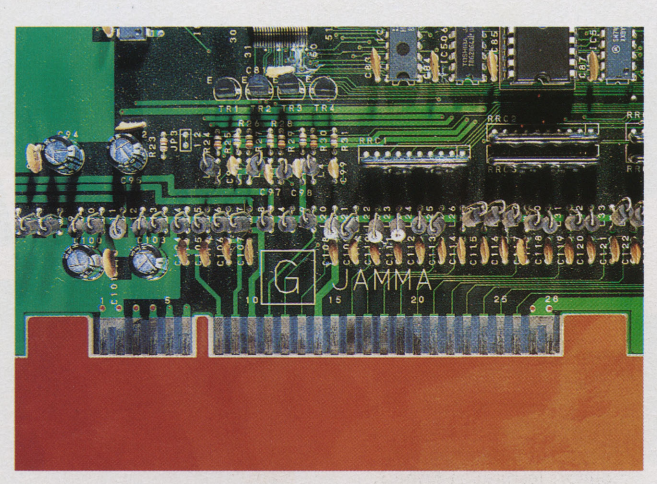
A **1.** Hanatrex make a wide selection of monitors, but computer monitors are usually the best bet for adjusting the vertical dimensions of the picture – this feature makes it possible to stretch the picture vertically to get rid of the borders present on UK consoles, but it won't solve the problem of a slower operating speed.
2. As far as the SNES is concerned, this can only be done either with a customised lead (some companies sell them) or on machines where the SCART lead comes out of a drilled hole in the casing, like early imported SFCs and American SNESs. This leaves the multi-out socket free for the connection of a SNES stereo lead.
3. Square's epic 24-meg *Final Fantasy VI* will be called *Final Fantasy III* in the US, and even in Japanese form its spectacular graphics and effects make Capcom's *Breath Of Fire* look rather tired. However, if you prefer action-style RPGs – like *Secret Of Mana* – the random combat of the *Final Fantasy* series could get a little irritating.
4. Nintendo reckon *Super SFII* won't sell in the UK at its inevitably high price because it isn't a big enough improvement over the previous *SFII* games.


***Final Fantasy VI*, Square's 24-meg RPG, coming soon**

Q In issue 10 there was an advert by Datel promoting a device called Arcade Mayhem. Datel claimed that this device in conjunction with a JAMMA arcade board would let you play arcade games on your own TV.
1. What is a JAMMA board?
2. Does the system have any major drawbacks?
3. Would you be able to play games like *Super SFII Turbo* and *Virtua Fighter*? Would the games be arcade quality?
4. Are JAMMA boards expensive?

John Stott, Oldham

A **1.** It's a standard connection for arcade printed circuit boards (PCBs) that was agreed by the

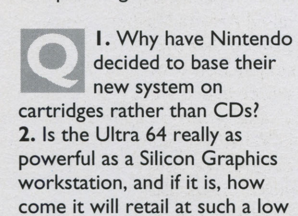


The JAMMA PCB connector standard gives Supergun owners access to a huge range of arcade classics (see letter from John Stott)

Japanese Amusement Machine Manufacturers Association. JAMMA connectors – including arcade cabinets and Supergun-type devices like Arcade Mayhem – can all use JAMMA PCBs; it's just a matter of plugging them in.
2. Yes. Stereo sound isn't catered for on the JAMMA connector – most boards have the sound branched off the board itself.
3. Some games are not JAMMA compatible. These games are usually the bigger, more expensive dedicated cabinet games like *Virtua Fighter* and *Starblade*, and, of course, racing games like *Out Run*, *Ridge Racer* and *Daytona*.
4. When new, yes, but some really old classics can be picked up for as little as £20. See **Edge** 3 for the full lowdown on the Supergun and JAMMA-compatible games.



This Angel Studio/Greystone demo shows the power of Silicon Graphics' Onyx. But what about Ultra 64? (See Dean Spencer's letter)



Q **1.** Why have Nintendo decided to base their new system on cartridges rather than CDs?
2. Is the Ultra 64 really as powerful as a Silicon Graphics workstation, and if it is, how come it will retail at such a low price? I have heard that it will cost around $250, which roughly translates to just under £200. Is this the official price?
3. Do you know of any plans for add-ons for the system?
4. When will we finally get to see an official photograph or even a mock-up of Nintendo's new baby?

Dean Spencer, Loughborough

A **1.** Nintendo are terrified of losing control of the pricing of their games, and that's one reason why they've been very cautious about moving into the CD-ROM market. Proprietary cartridges allow Nintendo to get away with charging licensees high prices for manufacturing their games, whereas CD-ROMs are cheap to manufacture and universally compatible. Releasing a CD-based system could have jeopardised Nintendo's position.
2. Silicon Graphics workstations start at £5,000 and rise to hundreds of thousands of pounds – performance is dependent on price. From what **Edge** has seen, there's some pretty powerful hardware in the Ultra 64. (See this month's CES report for more details.)
3. Nintendo's press information hints that the Ultra 64 is being designed so that a CD-ROM player, or other types of storage device, can be attached.
4. A mock-up probably won't be seen until this November's New Software Exhibition in Tokyo.



Nintendo and SGI: will the dream team be able to deliver?

Q Having read the hardware supplement with **Edge** 8, I have a few questions regarding the PS-X, Saturn and Project Reality.
1. What improvements have been made to Saturn to enable it to compete with the PlayStation?
2. The number of polygons per second Project Reality can handle is significantly less than its major rivals. Are there any plans for upgrades in this area?
3. What are 'anti-aliased' polygons?
4. Will Project Reality be a dedicated 3D machine?
5. Will the Jaguar's CD-ROM drive include any extra hardware, such as a texture-mapping chip or an extra processor?

Greg Taylor, Wigan

A **1.** Originally, Saturn's spec was closer to that of the Mega Drive 32. Sony's announcement prompted the inclusion of a 64bit video chip and other processors.
2. The 100,000 figure initially released by Nintendo/SGI is no indication of the true performance of the Ultra 64, as it is now called. By all accounts, the 64bit machine will have a polygon rendering performance greater than anything else in development.
3. Anti-aliasing is a shading process that is used to smooth out the rough edges of polygons. For example, grey pixels would be used to soften the sharp distinction between a white and a black pixel.
4. No, the machine should be able to handle all game genres.
5. It seems not. Atari have decided that the CD drive needs to be affordable above all other considerations.

Q **1.** Do SRAM chips have anything to do with ROM chips?
2. Could Nintendo's high-density ROM chip technology be applied to RAM chips?

L Palamara, Australia

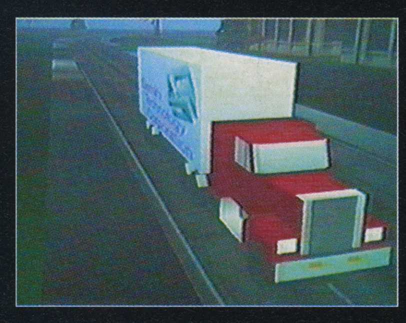
A **1.** SRAM is Static Random Access Memory, used for saving high scores. ROM stands for Read Only Memory – the prime component of most cartridge games. The difference is that SRAM chips can be written to, while ROM chips can't.
2. Nintendo are researching high-density ROM and RAM chip technologies, but the cartridge chips they'll be using for Ultra 64 will probably be based on existing ROM technology. **E**

Q and A

You can rely on Edge to cut through the technobabble and give you straight answers. Write to: Q&A, Edge, 30 Monmouth Street, Bath, Avon BA1 2BW, You can fax us on 0225 338236, or e-mail us via future@cix.compulink.co.uk. with a subject line 'ATTN: Jason Brookes'. Sorry, but we cannot answer any questions personally, either over the phone or by post.

Next month

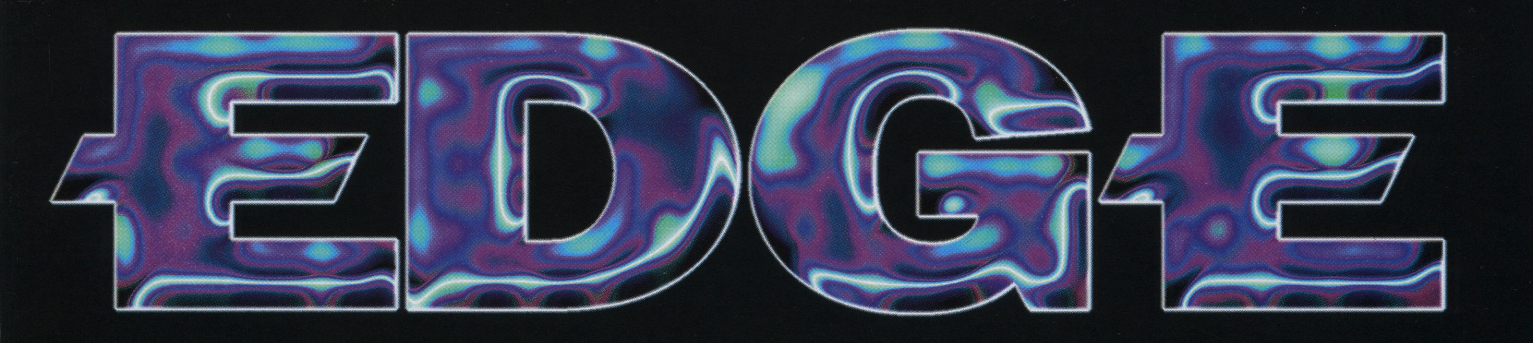
SigGraph '94



In late July 30,000 high-tech artists will converge on Orlando, Florida for SigGraph '94. Featuring events like the Electronic Theatre, where the world's best computer images are showcased, and the Art And Design Show, in which delegates vote for the most stunning and innovative projects of the year, SigGraph '94 is a unmissable event for electronic artists the world over. Edge flies to Florida to seek out the future of computer graphics.

EDGE 13

Thursday 25 August


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